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UPPER GREAT LAKES WASTE LOADINGS TRENDS

SIMULATION MODEL

Interim Scenario Report

J. P. H. Batteke
Social Sciences Division
Inland Waters Directorate-Ontario Region

April 1976

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INTRODUCTION

The estimates of waste loadings from point-sources in regions of the Upper Great Lakes Basin presented in this report have resulted from a series of detailed studies performed by members of the Simulation Modelling Team. The attached listing of working papers and presentations illustrates the depth of detail and the scope of factors considered; in addition, it reflects the major distribution of disciplinary responsibilities among Team Members. A schematic overview of the model structure is provided in Figure 1.

In recognition of the fact that accurate long-term forecasting is not possible, the Simulation Model was designed to merge technical quantitative analyses with qualitative factors, and thus to arrive at an understanding of the behaviour of the loadings levels under the influence of economic and social conditions in the basins. On the strength of this information, the Reference Group can assess future risks in critical areas and decide on the necessary recommendations for remedial actions, now or in the future. The model, first of all, should function as a discussion tool, which is capable of developing consistent quantitative estimates resulting from alternative sets of assumptions. It is recommended that the Reference Group utilize this capability to its fullest extent.

For point-source loadings, there is a direct--although not always measurable--relationship between the level of annual loadings and the yearly investment in pollution abatement equipment. Therefore, the report provides aggregate investment estimates commensurate with the loadings specified in each scenario.

For the purpose of producing this report, it was considered useful to provide the upper and lower boundaries to the future developments of the waste loadings. Such 'envelopes' serve as a rough limitation to the size of the problems. In cases where the upper extreme is still harmless in 2020--considered in terms of lake quality--there is no need for further analysis. This upper extreme of loadings will be further referred to as Scenario I. The most optimistic condition, the lower extreme, has been called Scenario III, while an intermediate loading condition is described in Scenario II.

The loadings obtained in Scenario I result from the following set of conditions:

- (1) A status quo is reached in environmental management and, consequently, pollution abatement expenditures grow at the same rate as GNP, so that the nation's relative expenditure on this equipment remains constant.
- (2) Because of this slow growth, insufficient incentives are generated for useful application of innovative technology.
- (3) There is little public interest in matters of environmental quality, and no change in habits of water usage will take place.

It will be obvious from the previous specifications that, indeed, this represents an extreme condition. The loadings generated in Scenario II represent a more optimistic view. It is in this, so called, Synergistic Scenario that allowance is made for a number of foreseeable changes in critical technical and economic conditions directly bearing on waste production and waste removal. The areas of change and the magnitude of the changes have been determined through a Delphi analysis. Detailed definitions and assessments have been documented in various working papers. In brief, conditions varied in the following factors:

- (1) Growth and spatial distribution of urban population.
- (2) The per capita waste production.
- (3) The industrial waste production per dollar of output.
- (4) The efficiency of municipal treatment plants in the removal of nutrients and toxicants.
- (5) The distribution of regional treatment capacities over the various levels of treatment in each region.
- (6) The efficiency of dollars invested in pollution abatement equipment.
- (7) The per capita water consumption.

(8) The relative capacity of industrial treatment in each region.

(9) The relative capacity of municipal treatment.

A variable of importance expresses the relative effectiveness of industrial treatment plants in place in the base year. Questionnaires designed to obtain field estimates, and circulated through the cooperation of members of the Coordinating Committee, produced meagre results. Team members introduced practical estimates for the purpose of getting the model operational. Although variations of these estimates from the true values might affect somewhat the absolute value of the industrial aggregate loads, its effect on trends and trend behaviour will be rather small.

Scenario III was developed to meet a specified condition in a certain time period. Its results are, in fact, predicated by the requirement of: "Zero Discharge in 1985". With regard to loadings levels, this most optimistic scenario will likely provide little cause for concern and action. The significance of this scenario is in the economic consequences of the 'zero discharge' policy, i.e., in the annual investment efforts necessary to reach this target in the specified period of time. Scenario III is an extension of the conditions depicted in Scenario II. Whereas in II, technological and sociological developments resulted in a decrease of most loadings, in III, that trend is exacerbated by injecting additional funds into plant and equipment for pollution abatement.

The terms used in the Investment Reports are:

MTMI01: The yearly investment in municipal treatment plants in constant dollars. Through the simulation period, MTMI01 is kept as a fixed percentage of GNP. This percentage is determined by the level of investments in the base year. This type of investment is built in the present economy, i.e., it could be considered as an 'institutionalized' investment.

MTMI03: This is the sum of institutionalized investments (MTMI01) and additional investments (MTMI02) controlled by policy decisions.

In Scenario I, there are no additional investments and, consequently, $MTMI03 = MTMI01$.

ITMI01: Industrial treatment plant investments. This value, in constant dollars, grows with GNP. The share of GNP is kept constant at the base year level value.

ITMI03: The sum of the institutionalized investment levels and additional investments (ITMI02) required by increased standards for the quality of discharged water. In Scenario I, there are no additional investments and, consequently, ITMI03 = ITMI01.

The estimates of the loadings are reported for thirty chemical parameters, for each of the four American and seven Canadian basin regions. The values reported for Municipal and Industrial Sources apply to each entire region; they include both wastes discharged to tributaries and wastes discharged directly to the lake. Thus, reported under Total Loading is the total region production of waste after treatment.

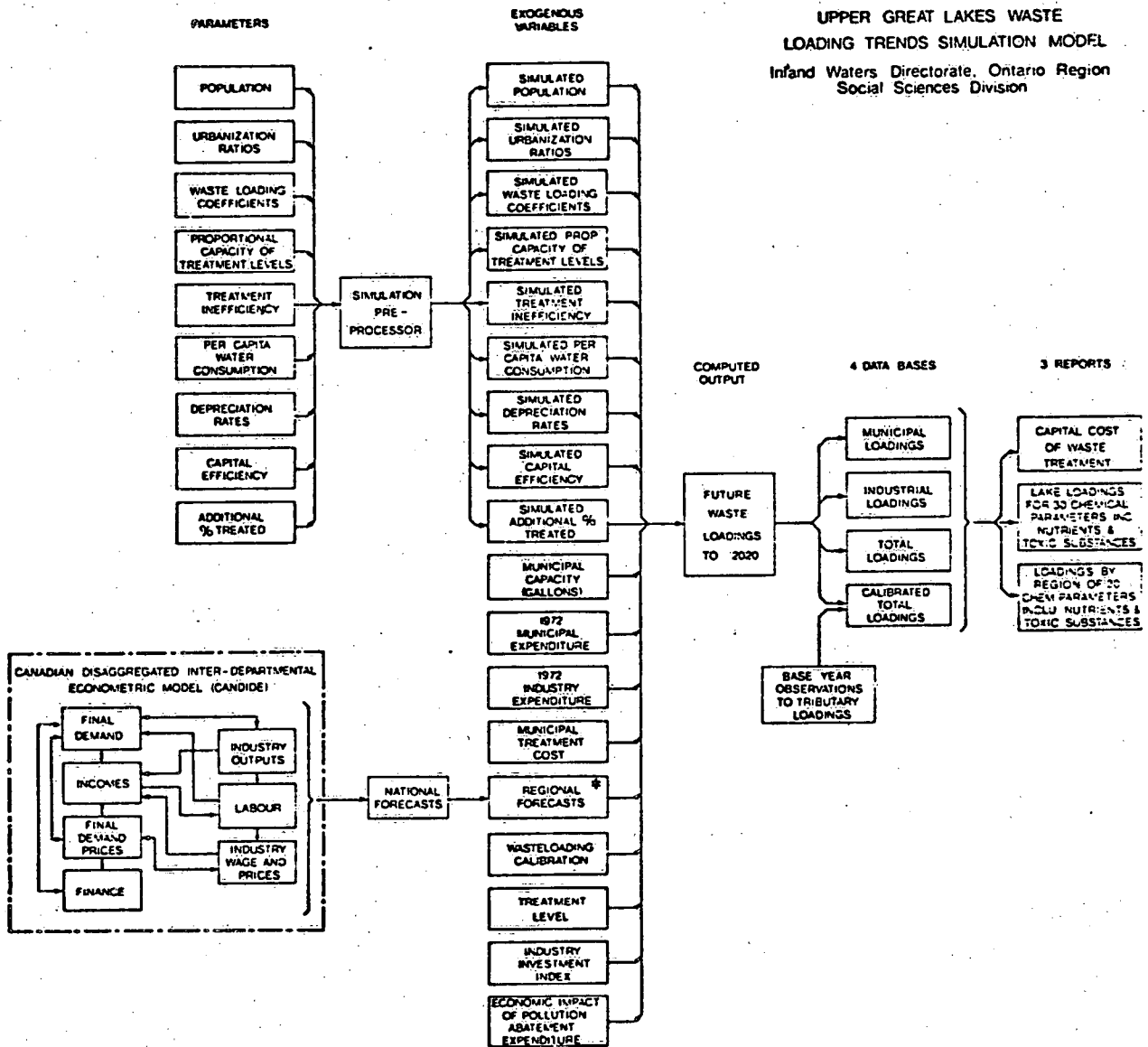
The values reported under Calibrated Loading are quantities of waste actually entering the lake. In the base year, these values correspond with the measured loadings (see report of Working Group C). For years following the base year, the values of Calibrated Loading are calculated by applying the difference--either positive or negative--to the Total Loading in each year.

This method, although not entirely satisfactory, was the only practicable way of determining actual lake loadings in the absence of relevant PLUARG land drainage estimates. Once such data is available, a proper calibration should be carried out.

Any previously circulated loadings estimates are superseded by the values presented in this report.

J. P. H. Batteke
Canadian Co-Chairman
Upper Lakes Reference Group
Working Group A

FIGURE 1



* Regional Forecasts for the U.S. Section of the Basin were taken from the OBERS projections.

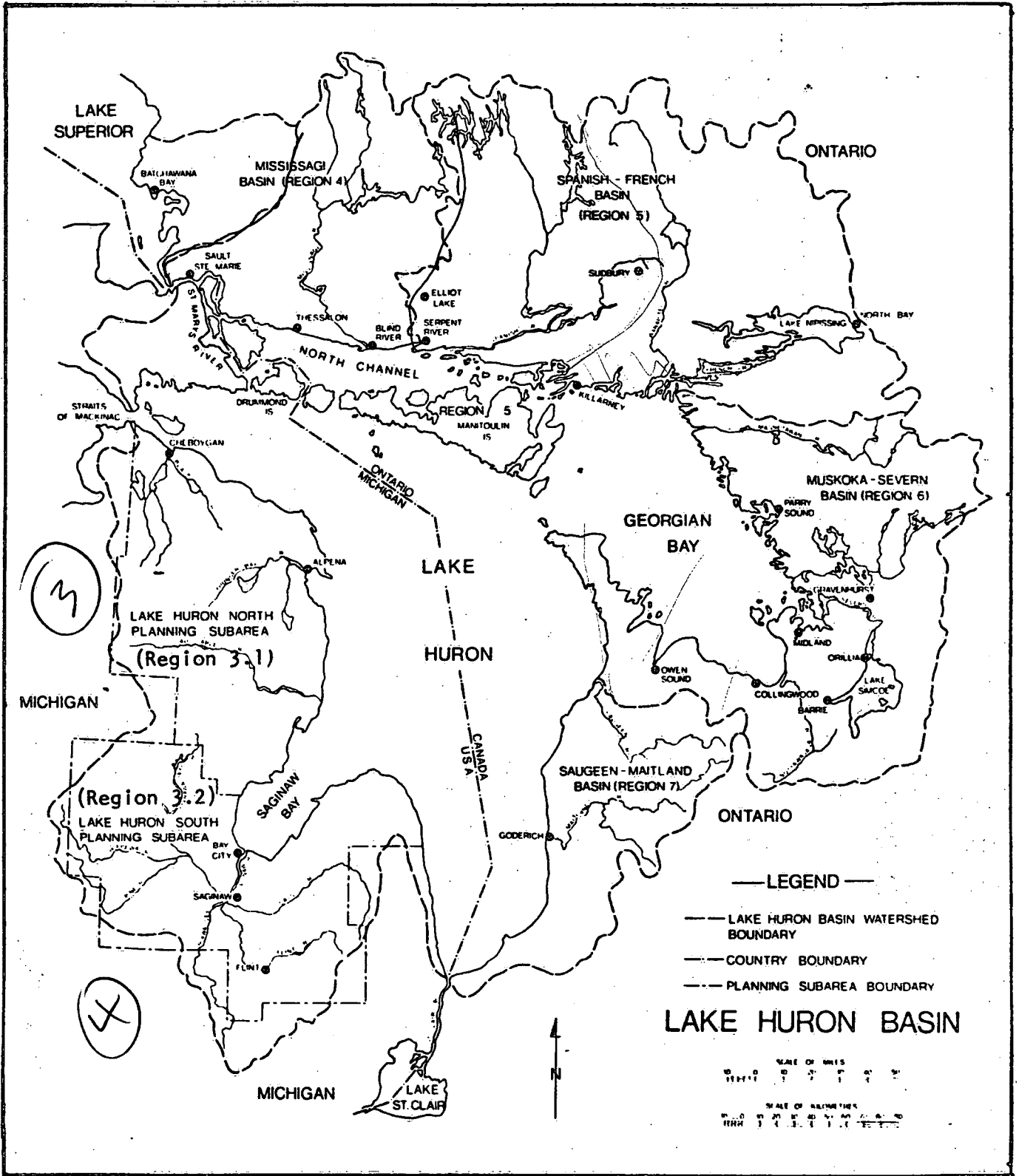
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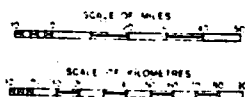
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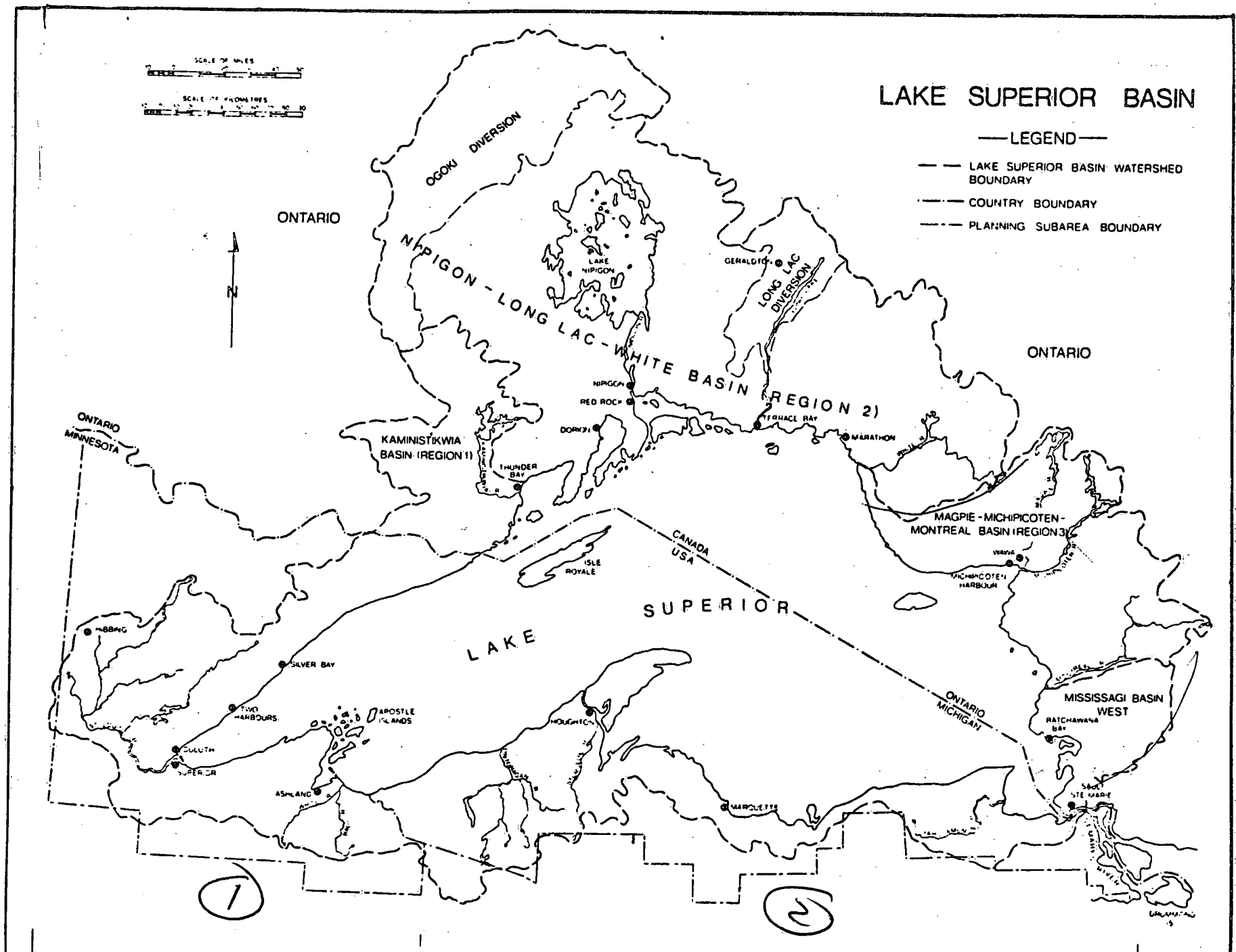
LAKE SUPERIOR BASIN

— LEGEND —

- LAKE SUPERIOR BASIN WATERSHED BOUNDARY
- COUNTRY BOUNDARY
- - - PLANNING SUBAREA BOUNDARY



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LAKE SUPERIOR WEST PLANNING SUBAREA
(Region 1.1)

LAKE SUPERIOR EAST PLANNING SUBAREA
(Region 1.2)

UPPER LAKES REFERENCE GROUP

WASTE LOADING TRENDS SIMULATION MODEL

BASE SCENARIO

CANADA

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U.S.A.

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CANADA

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BASE SCENARIO

CANADA

LOADING SUMMARY

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 1974. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	172	114	285	1,157	169	279	449	3,083
NITROGEN	1,123	2,388	3,510	97,911	1,436	10,412	11,848	20,913
DISS SOLID	19,828	440,561	460,388	3,012,698	24,949	717,772	742,720	3,604,189
CHLORIDE	2,705	2,784	5,489	233,666	3,487	75,352	78,839	227,591
SILICA	411	2,379	2,790	153,461	453	27,478	27,930	89,975
SUSP SOLID	3,263	29,286	32,549	307,265	4,549	55,407	59,955	211,113
OIL	144	177,183	177,327	0	526	184,631	185,158	0
SULPHUR	2,254	6,411	8,664	310,542	2,849	65,388	68,237	609,923
NH3	767	34,075	34,842	6,650	1,627	21,405	23,033	1,246
PHENOL	1	189	190	364	2	201	203	121
CYANIDE	16	19	35	990	34	31	65	263
ALUMINUM	541	681	1,222	26,145	1,149	266	1,415	3,569
BORON	0	23	23	0	0	1,061	1,061	0
BROMINE	0	14	14	0	0	646	646	0
CADMIUM	0	1	1	273	0	14	14	541
CALCIUM	2,255	12,454	14,710	179,069	4,787	95,373	100,160	3,223,463
CHROMIUM	1	13	14	848	1	99	101	322
COPPER	5	16	22	345,088	5	14	19	2,076
FLUORIDE	68	61	129	2,537	144	377	521	5,406
IRON	83	1,346	1,428	12,500	98	3,034	3,133	10,272
LEAD	4	3	7	1,382	4	30	34	2,263
MAGNESIUM	677	1,557	2,233	132,139	871	16,736	17,609	162,988
MANGANESE	6	21	27	5,760	14	264	277	1,288
MERCURY	0	0	0	4	0	1	1	2
NICKEL	1	58	58	1,493	1	95	96	3,374
POTASSIUM	370	1,267	1,636	75,574	785	12,180	12,965	32,922
SODIUM	1,894	24,394	26,287	146,840	4,021	75,789	79,810	199,102
TITANIUM	0	703	703	0	0	208	208	0
ZINC	9	59	68	498	10	89	99	2,150
BOU	5,863	99,001	104,864	171,469	12,446	40,567	53,013	62,000

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 1980. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	185	157	341	1,212	195	379	574	3,208
NITROGEN	1,208	3,213	4,421	98,822	1,619	13,509	15,129	24,195
DISS SOLID	21,335	613,763	635,098	3,187,408	28,178	1,009,874	1,038,051	3,899,519
CHLORIDE	2,912	3,805	6,717	234,894	3,935	105,827	109,762	258,515
SILICA	443	3,340	3,783	154,453	516	38,675	39,191	101,236
SUSP SOLID	3,505	40,362	43,867	318,583	5,240	73,490	78,730	229,887
OIL	154	256,032	256,186	78,858	607	266,787	267,395	82,237
SULPHUR	2,425	8,897	11,321	313,199	3,218	92,183	95,400	637,087
NH3	825	47,313	48,137	19,947	1,791	29,770	31,561	9,774
PHENOL	1	273	274	447	2	290	292	210
CYANIDE	17	28	45	999	38	43	82	280
ALUMINIUM	582	945	1,527	26,451	1,265	372	1,635	3,789
BORON	0	33	33	10	0	1,501	1,501	441
BROMINE	0	20	20	6	0	915	915	268
CADMIUM	0	1	2	273	0	21	21	547
CALCIUM	2,426	17,252	19,678	184,037	5,267	133,136	138,403	3,261,706
CHROMIUM	1	17	18	852	1	139	140	362
COPPER	5	22	28	345,094	5	19	25	2,083
FLUORIDE	73	88	161	2,569	158	535	694	5,579
IRON	89	1,932	2,021	13,092	112	4,331	4,443	11,582
LEAD	4	4	8	1,382	5	42	48	2,276
MAGNESIUM	728	2,175	2,903	132,809	984	23,543	24,527	169,907
MANGANESE	7	29	35	5,769	14	373	388	1,398
MERCURY	0	0	0	4	0	1	1	2
NICKEL	1	82	83	1,517	1	135	137	3,416
POTASSIUM	398	1,766	2,164	76,100	864	17,043	17,907	37,864
SODIUM	2,038	33,895	35,932	156,484	4,424	107,029	111,453	230,745
TITANIUM	0	976	976	273	0	289	289	81
ZINC	10	84	93	522	12	126	137	2,188
BOD	6,308	137,402	143,710	210,316	13,694	55,632	69,326	78,313

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 1985. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	196	208	403	1,274	220	479	698	3,332
NITROGEN	1,283	4,141	5,424	99,824	1,808	16,768	18,577	27,643
DISS SOLID	22,682	815,049	837,731	3,390,041	31,387	1,299,205	1,330,592	4,192,060
CHLORIDE	3,095	4,879	7,974	236,151	4,382	134,489	138,871	287,624
SILICA	471	4,367	4,837	155,507	576	50,388	50,964	113,010
SUSP SOLID	3,715	53,180	56,895	331,611	5,878	92,382	98,260	249,417
OIL	162	331,525	331,687	154,359	682	345,299	345,981	160,823
SULPHUR	2,578	11,726	14,304	316,183	3,584	117,435	121,019	662,705
PH3	877	63,116	63,993	35,802	1,992	39,198	41,189	19,402
PHENOL	1	354	355	528	3	374	377	294
CYANIDE	19	36	55	1,009	42	56	98	297
ALUMINIUM	619	1,263	1,882	26,805	1,406	491	1,896	4,050
BORON	0	42	42	19	0	1,921	1,921	860
BRUMINE	0	26	26	12	0	1,171	1,171	525
CALCIUM	0	2	2	274	0	26	27	553
CALCIUM	2,579	22,602	25,181	189,540	5,857	170,610	176,468	3,299,771
CHROMIUM	1	23	23	858	2	176	178	400
COPPER	6	28	33	345,100	6	24	31	2,088
FLUORIDE	77	114	192	2,600	176	683	859	5,745
IRON	95	2,513	2,607	13,678	125	5,556	5,681	12,821
LEAD	5	4	10	1,384	5	54	60	2,289
MAGNESIUM	774	2,851	3,625	133,531	1,095	30,445	31,541	176,920
MANGANESE	7	38	45	5,778	16	482	499	1,508
MERCURY	0	0	0	4	0	2	2	2
NICKEL	1	106	107	1,542	2	175	176	3,454
POTASSIUM	423	2,303	2,726	76,664	960	21,923	22,883	42,840
SODIUM	2,166	45,132	47,299	167,851	4,920	137,027	141,947	261,239
TITANIUM	0	1,303	1,303	600	0	386	386	178
ZINC	10	109	119	547	13	162	175	2,225
DOU	6,706	183,290	189,996	256,602	15,229	72,940	88,169	97,156

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 1990. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	207	243	450	1,320	244	585	829	3,462
NITROGEN	1,356	4,918	6,274	100,675	2,017	20,361	22,377	31,442
DISS SOLID	24,004	952,815	976,819	3,529,129	34,831	1,572,004	1,606,835	4,468,303
CHLORIDE	3,276	5,887	9,163	237,340	4,863	166,390	171,253	320,006
SILICA	498	5,350	5,847	156,518	640	62,024	62,664	124,709
SUSP SOLID	3,918	62,400	66,317	341,033	6,529	111,757	118,285	269,442
OIL	168	400,658	400,826	223,499	759	417,541	418,299	233,141
SULPHUR	2,728	13,833	16,561	318,440	3,977	146,467	150,444	692,131
NH3	928	73,517	74,444	46,254	2,237	46,939	49,175	27,388
PHENOL	1	426	427	601	3	454	456	374
CYANIDE	20	43	63	1,017	48	68	116	314
ALUMINIUM	655	1,468	2,123	27,046	1,579	585	2,164	4,317
BORON	0	54	55	32	0	2,475	2,475	1,414
BROMINE	0	33	33	19	0	1,508	1,508	862
CAESIUM	0	2	3	274	1	32	33	559
CALCIUM	2,730	26,903	29,633	193,991	6,577	212,602	219,178	3,342,481
CHROMIUM	1	27	27	862	2	212	213	435
COPPER	6	32	39	345,105	7	30	36	2,094
FLUORIDE	82	138	220	2,628	197	843	1,040	5,926
IRON	100	3,021	3,121	14,192	139	6,837	6,976	14,116
LEAD	5	5	11	1,385	6	68	74	2,302
MAGNESIUM	819	3,452	4,271	134,177	1,216	38,110	39,325	184,705
MANGANESE	7	45	53	5,786	18	595	613	1,624
MERCURY	0	0	0	4	0	2	2	3
NICKEL	1	128	129	1,563	2	213	215	3,493
POTASSIUM	447	2,778	3,226	77,163	1,078	27,123	28,202	48,159
SODIUM	2,293	52,694	54,987	175,539	5,525	170,205	175,730	295,021
TITANIUM	0	1,515	1,515	812	0	449	449	240
ZINC	11	129	140	568	14	196	211	2,261
BOD	7,097	213,258	220,355	286,961	17,101	85,913	103,014	112,001

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 2000. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	223	331	554	1,425	292	845	1,137	3,770
NITROGEN	1,466	6,849	8,315	102,715	2,419	20,980	31,399	40,465
DISS SOLID	25,979	1,304,032	1,330,011	3,882,321	41,472	2,254,578	2,296,050	5,157,518
CHLORIDE	3,545	8,434	11,979	240,156	5,789	245,246	251,035	399,788
SILICA	537	8,189	8,727	159,397	764	94,961	95,725	157,771
SUSP SOLID	4,213	85,767	89,981	364,697	7,812	159,013	166,824	317,982
OIL	177	592,573	592,750	415,422	910	617,853	618,763	433,605
SULPHUR	2,953	19,159	22,112	323,990	4,735	218,120	222,854	764,541
NH3	1,004	100,007	101,012	72,821	2,699	68,108	70,807	49,019
PHENOL	1	626	627	801	4	670	674	591
CYANIDE	22	65	86	1,040	58	102	159	356
ALUMINIUM	709	1,986	2,696	27,618	1,905	822	2,727	4,881
BORON	0	85	85	61	0	3,842	3,843	2,782
BROMINE	0	51	51	37	0	2,343	2,343	1,696
CADMIUM	0	4	4	275	1	49	50	576
CALCIUM	2,955	38,196	41,151	205,510	7,938	322,376	330,314	3,453,617
CHROMIUM	1	38	39	873	2	310	311	534
COPPER	7	45	52	345,119	8	42	50	2,109
FLUORIDE	88	203	291	2,699	239	1,244	1,482	6,367
IRON	108	4,414	4,522	15,593	166	10,136	10,301	17,441
LEAD	6	7	14	1,388	7	100	107	2,336
MAGNESIUM	886	5,088	5,973	135,880	1,447	58,538	59,985	205,365
MANGANESE	8	68	76	5,809	23	898	921	1,931
MERCURY	0	0	0	4	0	4	4	4
NICKEL	1	188	189	1,624	2	317	319	3,597
POTASSIUM	484	4,067	4,551	78,489	1,302	40,882	42,183	62,140
SODIUM	2,482	71,880	74,363	194,914	6,668	252,487	259,155	378,446
TITANIUM	0	2,049	2,049	1,346	0	607	607	399
ZINC	12	181	193	622	16	287	304	2,354
BOD	7,681	289,185	296,867	363,473	20,639	118,442	139,082	148,068

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 2010. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	243	469	712	1,582	351	1,238	1,590	4,224
NITROGEN	1,601	9,788	11,390	105,791	2,920	41,540	44,460	53,534
DISS SOLID	28,417	1,854,211	1,882,626	4,434,936	49,765	3,293,512	3,343,278	6,204,747
CHLORIDE	3,878	12,381	16,259	244,436	6,945	366,493	373,438	522,191
SILICA	587	13,050	13,637	164,308	920	150,666	151,586	213,631
SUSP SOLID	4,579	122,210	126,788	401,504	9,421	229,550	238,971	390,128
OIL	188	916,958	917,146	739,819	1,099	956,155	957,253	772,096
SULPHUR	3,229	27,508	30,738	332,617	5,682	329,451	335,133	876,820
NH3	1,099	141,576	142,675	114,484	3,270	103,036	106,305	84,518
PHENOL	1	963	965	1,139	4	1,035	1,039	957
CYANIDE	23	100	123	1,077	69	155	224	422
ALUMINIUM	776	2,795	3,571	28,494	2,308	1,193	3,501	5,655
BORON	0	132	132	109	0	6,016	6,016	4,954
BROMINE	0	81	81	67	0	3,667	3,667	3,020
CADMIUM	0	5	5	277	1	77	78	604
CALCIUM	3,232	56,580	59,812	224,171	9,617	503,407	513,023	3,636,327
CHROMIUM	1	58	58	893	3	485	488	709
COPPER	8	67	75	345,141	10	64	74	2,131
FLUORIDE	97	310	407	2,815	289	1,870	2,158	7,043
IRON	118	6,744	6,862	17,933	199	15,419	15,618	22,757
LEAD	6	11	17	1,391	9	149	158	2,387
MAGNESIUM	969	7,784	8,753	138,660	1,736	92,169	93,905	239,285
MANGANESE	9	104	113	5,847	27	1,396	1,423	2,433
MERCURY	0	0	0	4	0	4	5	5
NICKEL	1	289	291	1,725	3	487	490	3,767
POTASSIUM	530	6,187	6,717	80,654	1,577	63,184	64,761	84,718
SODIUM	2,714	101,930	104,644	225,196	8,078	380,483	388,562	507,853
TITANIUM	0	2,884	2,884	2,181	0	854	854	646
ZINC	13	267	280	708	20	432	452	2,503
BOD	8,402	407,846	416,249	482,855	25,004	168,651	193,655	202,642

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 2020. IN METRIC TONNES.

PARAMETER	LAKE SUPERIOR				LAKE HURON			
	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	266	700	967	1,838	427	1,887	2,314	4,948
NITROGEN	1,757	14,706	16,464	110,864	3,584	61,818	65,402	74,468
DISS SOLID	31,234	2,792,005	2,823,239	5,375,549	60,505	5,003,948	5,064,453	7,925,921
CHLORIDE	4,262	19,028	23,290	251,467	8,444	567,763	576,207	724,960
SILICA	644	21,704	22,388	173,058	1,120	249,455	250,574	312,620
SUSP SOLID	5,000	184,244	189,245	463,961	11,457	345,418	356,875	508,033
OIL	201	1,504,538	1,504,738	1,327,411	1,339	1,568,480	1,569,819	1,384,661
SULPHUR	3,550	41,799	45,348	347,227	6,907	518,731	525,639	1,067,325
NH3	1,208	212,534	213,742	185,550	4,073	164,320	168,393	146,606
PHENOL	2	1,572	1,573	1,748	4	1,690	1,695	1,613
CYANIDE	25	163	189	1,143	86	249	336	534
ALUMINIUM	852	4,172	5,026	29,940	2,876	1,837	4,712	6,866
BORON	0	218	218	194	0	9,911	9,912	8,851
BROMINE	0	133	133	119	0	6,042	6,042	5,395
CADMIUM	0	8	9	281	1	127	127	653
CALCIUM	3,552	88,898	92,450	256,809	11,980	829,364	841,344	3,964,648
CHROMIUM	1	95	95	930	3	814	817	1,040
COPPER	8	104	113	345,179	13	101	113	2,171
FLUORIDE	106	503	610	3,018	359	2,925	3,285	8,170
IRON	130	10,934	11,063	22,135	242	24,580	24,822	31,961
LEAD	7	16	23	1,398	11	233	244	2,472
MAGNESIUM	1,066	12,534	13,600	143,507	2,111	152,166	154,276	299,656
MANGANESE	10	171	181	5,914	33	2,259	2,292	3,303
MERCURY	0	1	1	4	0	8	8	8
NICKEL	2	472	473	1,907	3	787	791	4,069
POTASSIUM	582	9,913	10,495	84,433	1,965	101,920	103,883	123,840
SODIUM	2,984	153,208	156,191	276,744	10,063	597,676	607,739	727,031
TITANIUM	0	4,302	4,302	3,599	0	1,274	1,274	1,066
ZINC	14	419	433	861	24	681	706	2,756
BOD	9,236	609,957	619,194	685,799	31,146	253,376	284,523	293,510

BASE SCENARIO

CANADA

CAPITAL COSTS

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
 UPPER LAKES REFERENCE GROUP
 WASTELOADING SIMULATION MODEL

DATE 04/20/76

ECONOMIC SUMMARY
 CAPITAL INVESTMENT ONLY
 1973 TREATMENT EFFORT
 1961 CONSTANT DOLLARS

CANADA

YEAR	LAKE SUPERIOR				LAKE HURON			
	INDUSTRIAL		MUNICIPAL		INDUSTRIAL		MUNICIPAL	
	ITMI01	ITMI03	MTMI01	MTMI03	ITMI01	ITMI03	MTMI01	MTMI03
1974.	\$1,882,528	\$1,882,528	\$210,939	\$210,939	\$4,587,481	\$4,587,481	\$508,824	\$508,824
1980.	\$3,080,349	\$3,080,349	\$230,005	\$230,005	\$6,084,781	\$6,084,781	\$619,754	\$619,754
1985.	\$4,243,381	\$4,243,381	\$245,911	\$245,911	\$8,018,977	\$8,018,977	\$868,150	\$868,150
1990.	\$4,004,012	\$4,004,012	\$252,213	\$252,213	\$8,681,128	\$8,681,128	\$973,796	\$973,796
2000.	\$5,807,219	\$5,807,219	\$252,819	\$252,819	\$13,675,435	\$13,675,435	\$1,085,833	\$1,085,833
2010.	\$9,185,663	\$9,185,663	\$287,074	\$287,074	\$22,800,622	\$22,800,622	\$1,356,941	\$1,356,941
2020.	\$15,702,511	\$15,702,511	\$319,105	\$319,105	\$40,278,362	\$40,278,362	\$1,999,397	\$1,999,397

BASE SCENARIO

CANADA

REGION LOADINGS

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

PAGE 1

1973 TREATMENT EFFORT

LOADINGS FOR 1974. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	96	58	155	428
NITROGEN	615	1,289	1,903	3,434
DISS SOLID	10,551	203,312	213,863	817,329
CHLORIDE	1,439	1,251	2,689	40,227
SILICA	225	176	401	24,376
SUSP SOLID	1,940	14,087	16,027	36,913
OIL	116	1,697	1,814	0
SULPHUR	1,199	3,079	4,278	82,629
NH3	408	16,302	16,709	475
PHENOL	1	8	9	27
CYANIDE	9	0	9	34
ALUMINUM	288	338	625	918
BORON	0	12	12	0
BROMINE	0	7	7	0
CADMIUM	0	0	0	106
CALCIUM	1,199	5,785	6,984	50,761
CHROMIUM	0	7	7	92
COPPER	3	7	11	150
FLUORIDE	36	5	41	868
IRON	45	122	167	4,933
LEAD	3	1	4	336
MAGNESIUM	360	446	806	37,001
MANGANESE	4	4	7	422
MERCURY	0	0	0	1
NICKEL	1	4	4	189
POTASSIUM	196	329	526	5,121
SODIUM	1,007	11,633	12,641	50,419
TITANIUM	0	349	349	0
ZINC	4	20	24	199
BOD	3,118	48,382	51,500	113,599

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	33	35	239
NITROGEN	15	397	413	5,265
DISS SOLID	310	132,347	132,656	1,573,863
CHLORIDE	42	432	475	124,957
SILICA	5	1,211	1,217	72,748
SUSP SOLID	42	7,542	7,584	219,317
OIL	2	667	669	0
SULPHUR	35	1,638	1,673	102,667
NH3	12	11,489	11,501	202
PHENOL	0	5	5	109
CYANIDE	0	0	0	140
ALUMINUM	8	229	238	273
BORON	0	2	2	0
BROMINE	0	1	1	0
CAUDIUM	0	1	1	55
CALCIUM	36	3,382	3,417	322
CHROMIUM	0	2	2	123
COPPER	0	1	1	134
FLUORIDE	1	2	4	735
IRON	1	73	75	3,240
LEAD	0	1	1	357
MAGNESIUM	11	609	620	73,150
MANGANESE	0	9	9	590
MERCURY	0	0	0	2
NICKEL	0	2	2	514
POTASSIUM	5	395	401	20,392
SODIUM	30	7,754	7,785	77,136
TITANIUM	0	237	237	0
ZINC	0	10	10	39
BOD	93	32,391	32,483	41,218

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	0	0	79,412
DISS SOLID	0	3,569	3,569	402,178
CHLORIDE	0	115	115	9,735
SILICA	0	795	795	25,830
SUSP SOLID	0	58	58	7,291
OIL	0	194	194	0
SULPHUR	0	14	14	45,853
NH3	0	425	425	104
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	2	2	167
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	4
CALCIUM	0	695	695	66,653
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	2	2	502
LEAD	0	0	0	40
MAGNESIUM	0	284	284	11,636
MANGANESE	0	4	4	4,280
MERCURY	0	0	0	2
NICKEL	0	0	0	40
POTASSIUM	0	181	181	5,238
SODIUM	0	145	145	6,919
TITANIUM	0	2	2	0
ZINC	0	0	0	4
BOD	0	213	213	184

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	73	23	95	425
NITROGEN	493	695	1,188	9,801
DISS SOLID CHLORIDE	8,968	101,334	110,301	219,328
SILICA	1,224	985	2,210	58,747
SUSP SOLID	181	197	378	30,507
OIL	1,279	7,600	8,879	43,744
SULPHUR	26	174,625	174,651	0
NH3	1,020	1,681	2,700	79,394
PHENOL	347	5,859	6,206	5,870
CYANIDE	0	175	176	200
ALUMINUM	7	19	26	753
BORON	245	113	357	24,787
BROMINE	0	11	11	0
CAESIUM	0	6	6	0
CALCIUM	0	0	0	108
CHROMIUM	1,021	2,592	3,613	61,332
COPPER	0	4	4	55
FLUORIDE	3	7	10	344,764
IRON	31	54	85	540
LEAD	36	1,150	1,186	3,825
MAGNESIUM	2	1	3	649
MANGANESE	306	216	522	10,353
MERCURY	3	3	5	467
NICKEL	0	0	0	0
POTASSIUM	0	51	51	751
SODIUM	167	362	529	44,822
TITANIUM	857	4,861	5,718	12,365
ZINC	0	116	116	0
BOD	4	30	34	256
	2,652	18,014	20,668	16,467

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	140	43	183	1,207
NITROGEN	895	1,320	2,220	3,622
DISS. SOLID	15,748	267,624	283,372	485,448
CHLORIDE	2,182	4,846	7,027	42,492
SILICA	324	22,130	22,453	22,557
SUSP. SOLID	3,695	11,018	14,713	48,783
OIL	437	115,975	116,411	0
SULPHUR	1,796	3,245	5,039	113,756
NH3	657	17,625	18,282	327
PHENOL	1	118	119	23
CYANIDE	14	13	26	52
ALUMINUM	464	159	623	504
BORON	0	65	65	0
BROMINE	0	40	40	0
CADMIUM	0	9	9	113
CALCIUM	1,931	25,430	27,362	61,444
CHROMIUM	1	7	8	57
COPPER	4	6	10	927
FLUORIDE	58	40	97	540
IRON	68	805	873	1,631
LEAD	3	1	4	682
MAGNESIUM	545	8,719	9,265	17,066
MANGANESE	5	137	142	437
MERCURY	0	0	0	0
NICKEL	1	43	44	398
POTASSIUM	317	5,435	5,752	5,689
SODIUM	1,623	9,593	11,216	22,008
TITANIUM	0	161	161	0
ZINC	6	35	42	284
BOD	5,021	24,002	29,023	18,511

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVFRN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	86	93	1,612
NITROGEN	304	5,826	6,130	10,397
DISS SOLID	3,160	151,425	154,585	1,585,225
CHLORIDE	448	8,543	8,991	78,767
SILICA	45	763	808	47,808
SUSP SOLID	236	26,420	26,656	93,486
OIL	32	55,229	55,262	0
SULPHUR	362	11,101	11,462	236,357
NH3	705	2,291	2,994	752
PHENOL	1	57	58	76
CYANIDE	15	6	22	164
ALUMINUM	497	46	543	850
BORON	0	349	349	0
BROMINE	0	213	213	0
CADMIUM	0	0	0	359
CALCIUM	2,072	37,622	39,694	2,882,779
CHROMIUM	0	76	76	180
COPPER	1	4	5	899
FLUORIDE	62	42	104	3,868
IRON	11	529	539	6,337
LEAD	1	3	3	1,174
MAGNESIUM	112	3,326	3,439	44,752
MANGANESE	5	8	14	686
MERCURY	0	0	0	1
NICKEL	0	19	19	2,733
POTASSIUM	340	1,576	1,916	19,114
SODIUM	1,741	9,118	10,858	57,197
TITANIUM	0	24	24	0
ZINC	1	17	18	850
BOD	5,386	9,171	14,558	25,470

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974, IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
		50		
PHOSPHORUS	23	150	173	264
NITROGEN	237	3,261	3,497	6,896
DISS SOLID	6,041	298,722	304,763	1,533,515
CHLORIDE	857	61,963	62,820	106,332
SILICA	84	4,585	4,668	19,610
SUSP SOLID	617	17,969	18,587	68,844
OIL	58	13,427	13,485	0
SULPHUR	692	51,043	51,736	259,810
NI3	266	1,490	1,757	167
PHENOL	0	26	27	23
CYANIDE	5	12	17	48
ALUMINUM	188	61	249	2,215
BORON	0	646	646	0
BROMINE	0	394	394	0
CADMIUM	0	5	5	68
CALCIUM	784	32,322	33,106	279,240
CHROMIUM	0	17	17	86
COPPER	1	3	4	251
FLUORIDE	23	295	319	998
IRON	20	1,700	1,720	2,304
LEAD	1	27	28	407
MAGNESIUM	214	4,691	4,905	101,171
MANGANESE	2	119	122	166
MERCURY	0	1	1	0
NICKEL	0	32	32	243
POTASSIUM	129	5,169	5,297	8,119
SODIUM	659	57,079	57,737	119,897
TITANIUM	0	23	23	0
ZINC	2	37	39	1,015
BOD	2,038	7,393	9,432	18,019

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

1973 TREATMENT EFFORT

LOADINGS FOR 1980. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	103	80	182	455
NITROGEN	652	1,708	2,362	3,892
DISS SOLID	11,208	282,355	293,563	897,030
CHLORIDE	1,528	1,679	3,207	40,744
SILICA	239	242	482	24,456
SUSP SOLID	2,061	19,242	21,303	42,187
OIL	124	2,403	2,527	714
SULPHUR	1,274	4,254	5,528	83,878
NH3	433	22,613	23,045	6,811
PHENOL	1	12	13	30
CYANIDE	9	0	10	35
ALUMINUM	306	469	775	1,067
BORON	0	16	16	4
BROMINE	0	10	10	3
CADMIUM	0	0	0	106
CALCIUM	1,274	7,978	9,252	53,028
CHROMIUM	0	10	10	95
COPPER	3	10	13	153
FLUORIDE	38	7	46	872
IRON	48	168	216	4,983
LEAD	3	2	4	337
MAGNESIUM	383	620	1,003	37,197
MANGANESE	4	5	8	423
MERCURY	0	0	0	1
NICKEL	1	5	6	191
POTASSIUM	209	447	656	5,251
SODIUM	1,070	16,139	17,209	54,987
TITANIUM	0	484	484	135
ZINC	5	27	32	206
BOD	3,311	67,074	70,385	132,485

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	46	49	252
NITROGEN	16	550	566	5,419
DISS SOLID	325	183,776	184,100	1,625,308
CHLORIDE	45	602	647	125,129
SILICA	6	1,701	1,706	73,238
SUSP SOLID	45	10,462	10,507	222,240
OIL	2	931	933	265
SULPHUR	37	2,273	2,310	103,304
NH3	13	15,953	15,966	4,666
PHENOL	0	7	7	112
CYANIDE	0	0	0	140
ALUMINUM	9	318	327	362
BORON	0	2	2	1
BROMINE	0	1	1	0
CADMIUM	0	1	1	55
CALCIUM	38	4,712	4,749	1,654
CHROMIUM	0	2	2	124
COPPER	0	2	2	135
FLUORIDE	1	3	4	735
IRON	1	102	104	3,269
LEAD	0	1	1	358
MAGNESIUM	11	854	865	73,395
MANGANESE	0	13	13	594
MERCURY	0	0	0	2
NICKEL	0	3	3	515
POTASSIUM	6	553	559	20,551
SODIUM	32	10,765	10,796	80,148
TITANIUM	0	329	329	92
ZINC	0	14	14	42
BOD	97	44,950	45,047	53,782

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	9	9	79,415
DISS SOLID	0	4,999	4,999	403,610
CHLORIDE	0	163	163	9,782
SILICA	0	1,118	1,118	26,152
SUSP SOLID	0	81	81	7,314
OIL	0	280	280	86
SULPHUR	0	19	19	45,858
NH3	0	596	596	275
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	2	2	168
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	1	1	4
CALCIUM	0	976	976	66,935
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	3	3	503
LEAD	0	0	0	40
MAGNESIUM	0	401	401	11,751
MANGANESE	0	7	7	4,282
MERCURY	0	0	0	2
NICKEL	0	1	1	40
POTASSIUM	0	254	254	5,312
SODIUM	0	203	203	6,978
TITANIUM	0	2	2	1
ZINC	0	1	1	4
BOD	0	296	296	266

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	80	31	110	440
NITROGEN	539	945	1,484	10,097
DISS SOLID	9,803	142,632	152,435	261,461
CHLORIDE	1,338	1,363	2,701	59,239
SILICA	197	279	477	30,606
SUSP SOLID	1,398	10,578	11,976	46,841
OIL	28	252,418	252,446	77,795
SULPHUR	1,114	2,351	3,465	80,159
NH3	379	8,151	8,531	8,195
PHENOL	0	253	253	277
CYANIDE	8	27	35	763
ALUMINUM	267	157	424	24,854
BORON	0	15	15	4
BROMINE	0	9	9	3
CADMIUM	0	0	0	108
CALCIUM	1,115	3,586	4,701	62,420
CHROMIUM	0	5	5	56
COPPER	3	11	14	344,768
FLUORIDE	33	77	112	567
IRON	40	1,660	1,699	4,338
LEAD	2	1	3	649
MAGNESIUM	335	301	635	10,466
MANGANESE	3	4	7	469
MERCURY	0	0	0	0
NICKEL	0	74	74	773
POTASSIUM	183	511	694	44,986
SODIUM	937	6,789	7,726	14,373
TITANIUM	0	161	161	45
ZINC	4	43	47	269
BOD	2,900	25,082	27,982	23,783

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	164	59	223	1,247
NITROGEN	1,051	1,763	2,814	4,216
DISS SOLID	18,507	375,131	393,638	595,714
CHLORIDE	2,563	6,731	9,294	44,759
SILICA	381	31,104	31,485	31,587
SUSP SOLID	4,342	15,069	19,411	53,481
OIL	513	167,621	168,134	51,722
SULPHUR	2,110	4,522	6,631	115,349
NH3	771	24,637	25,408	7,453
PHENOL	1	170	171	76
CYANIDE	16	18	34	59
ALUMINUM	544	221	767	647
BORON	0	92	92	27
BROMINE	0	50	56	16
CADMIUM	0	13	13	117
CALCIUM	2,270	35,631	37,901	71,984
CHROMIUM	1	10	11	59
COPPER	4	9	14	930
FLUORIDE	68	57	125	568
IRON	80	1,160	1,239	1,998
LEAD	4	1	4	683
MAGNESIUM	641	12,253	12,893	20,695
MANGANESE	6	193	199	492
MERCURY	0	0	0	0
NICKEL	1	62	63	417
POTASSIUM	373	7,631	8,003	7,940
SODIUM	1,906	13,401	15,307	26,100
TITANIUM	0	223	223	62
ZINC	8	50	58	301
BOD	5,901	33,306	39,208	28,695

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVFRN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	111	118	1,638
NITROGEN	319	7,470	7,789	12,056
DISS SOLID CHLORIDE	3,313	212,306	215,618	1,646,258
SILICA	47	11,467	11,937	81,713
SUSP SOLID	47	1,069	1,116	48,116
OIL	248	34,321	34,568	101,399
SULPHUR	33	79,823	79,856	24,594
NH3	380	15,403	15,782	240,677
PHENOL	739	3,101	3,840	1,598
CYANIDE	1	82	83	101
ALUMINUM	15	9	25	167
BORON	521	64	585	892
BROMINE	0	495	495	145
CADMIUM	0	302	302	88
CALCIUM	0	1	1	359
CHROMIUM	2,173	52,138	54,310	2,897,395
COPPER	0	105	105	210
FLUORIDE	1	6	7	901
IRON	65	60	125	3,889
LEAD	11	758	769	6,566
MAGNESIUM	1	4	4	1,175
MANGANESE	117	4,667	4,785	46,097
MERCURY	6	12	18	689
NICKEL	0	0	0	1
POTASSIUM	0	27	27	2,741
SODIUM	356	2,129	2,485	19,682
TITANIUM	1,824	12,753	14,578	60,916
ZINC	0	34	34	10
BOD	1	24	25	857
	5,647	12,236	17,883	28,796

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	24	208	232	323
NITROGEN	249	4,277	4,526	7,924
DISS SOLID	6,358	422,457	428,795	1,657,548
CHLORIDE	902	87,629	88,531	132,044
SILICA	88	6,502	6,591	21,533
SUSP SOLID	650	24,101	24,751	75,008
OIL	61	19,344	19,404	5,919
SULPHUR	728	72,258	72,986	281,061
NH3	281	2,033	2,313	723
PHENOL	0	38	38	33
CYANIDE	6	16	23	52
ALUMINIUM	198	86	284	2,249
BORON	0	915	915	268
BROMINE	0	558	558	164
CADMIUM	0	7	7	70
CALCIUM	825	45,367	46,192	292,327
CHROMIUM	0	23	23	92
COPPER	1	4	4	252
FLUORIDE	25	419	444	1,122
IRON	21	2,413	2,435	3,019
LEAD	1	38	39	418
MAGNESIUM	226	6,623	6,849	103,115
MANGANESE	3	169	171	216
MERCURY	0	1	1	1
NICKEL	0	46	46	257
POTASSIUM	135	7,285	7,420	10,242
SODIUM	693	80,875	81,568	143,728
TITANIUM	0	32	32	9
ZINC	3	52	54	1,031
BOB	2,145	10,091	12,236	20,822

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

1973 TREATMENT EFFORT

LOADINGS FOR 1985. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	106	105	212	485
NITROGEN	679	2,185	2,865	4,396
DISS SOLID	11,672	375,543	387,215	990,681
CHLORIDE	1,591	2,135	3,727	41,264
SILICA	249	313	562	24,537
SUSP SOLID	2,147	25,302	27,449	48,334
OIL	129	3,157	3,286	1,472
SULPHUR	1,327	5,606	6,933	85,283
NH3	451	30,189	30,640	14,405
PHENOL	1	16	16	34
CYANIDE	10	1	10	35
ALUMINUM	319	626	945	1,238
BORON	0	21	21	9
BROMINE	0	13	13	5
CADMIUM	0	0	0	106
CALCIUM	1,327	10,419	11,746	55,523
CHROMIUM	0	13	14	97
COPPER	4	12	15	155
FLUORIDE	40	10	49	877
IRON	49	224	274	5,040
LEAD	3	2	4	337
MAGNESIUM	398	812	1,211	37,405
MANGANESE	4	6	10	425
MERCURY	0	0	0	1
NICKEL	1	7	7	193
POTASSIUM	218	581	799	5,395
SODIUM	1,114	21,513	22,627	60,405
TITANIUM	0	647	647	298
ZINC	5	34	40	214
BOD	3,449	89,504	92,953	155,052

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	62	64	268
NITROGEN	18	733	751	5,602
DISS SOLID	355	245,024	245,380	1,686,587
CHLORIDE	49	795	844	125,326
SILICA	6	2,228	2,235	73,767
SUSP SOLID	49	13,964	14,013	225,746
OIL	2	1,258	1,240	571
SULPHUR	40	3,032	3,073	104,066
NH3	14	21,289	21,303	10,004
PHENOL	0	10	10	113
CYANIDE	0	0	1	140
ALUMINUM	10	425	435	469
BORON	0	3	3	1
BROMINE	0	2	2	1
CADMIUM	0	1	1	55
CALCIUM	40	6,248	6,289	3,193
CHROMIUM	0	3	3	124
COPPER	0	2	2	135
FLUORIDE	1	4	5	737
IRON	2	136	138	3,303
LEAD	0	1	2	358
MAGNESIUM	13	1,123	1,136	73,665
MANGANESE	0	17	17	598
MERCURY	0	0	0	2
NICKEL	0	4	4	516
POTASSIUM	6	728	735	20,727
SODIUM	34	14,370	14,405	83,757
TITANIUM	0	439	439	203
ZINC	0	18	18	47
BOD	106	60,037	60,143	68,879

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	65
NITROGEN	0	13	13	79,418
DISS SOLID	0	6,539	6,539	405,149
CHLORIDE	0	212	212	9,832
SILICA	0	1,463	1,463	26,499
SUSP SOLID	0	108	108	7,340
OIL	0	363	363	169
SULPHUR	0	25	25	45,864
NH3	0	782	782	462
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	3	3	169
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	1	1	4
CALCIUM	0	1,279	1,279	67,237
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	3	3	503
LEAD	0	0	0	40
MAGNESIUM	0	524	524	11,875
MANGANESE	0	9	9	4,284
MERCURY	0	0	0	2
NICKEL	0	1	1	40
POTASSIUM	0	333	333	5,390
SODIUM	0	266	266	7,042
TITANIUM	0	3	3	1
ZINC	0	1	1	4
BOD	0	395	395	365

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	86	40	127	456
NITROGEN	586	1,211	1,796	10,409
DISS SOLID	10,654	187,943	198,598	307,624
CHLORIDE	1,454	1,736	3,191	59,728
SILICA	215	363	577	30,706
SUSP SOLID	1,519	13,807	15,326	50,191
OIL	31	326,768	326,798	152,147
SULPHUR	1,211	3,064	4,275	80,969
NH3	412	10,857	11,268	10,932
PHENOL	1	328	328	352
CYANIDE	9	35	44	771
ALUMINUM	291	209	500	24,929
BORON	0	19	19	9
BROMINE	0	12	12	5
CADMIUM	0	0	0	108
CALCIUM	1,212	4,655	5,867	63,587
CHROMIUM	0	7	7	58
COPPER	3	14	16	344,770
FLUORIDE	36	101	137	593
IRON	43	2,150	2,193	4,832
LEAD	3	1	4	650
MAGNESIUM	364	392	755	10,586
MANGANESE	4	5	9	471
MERCURY	0	0	0	0
NICKEL	1	95	95	795
POTASSIUM	199	661	859	45,152
SODIUM	1,018	8,982	10,000	16,647
TITANIUM	0	215	215	99
ZINC	4	56	60	283
BOD	3,152	33,354	36,505	32,306

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	185	77	263	1,286
NITROGEN	1,189	2,235	3,424	4,825
DISS SOLID	20,920	488,762	509,682	711,758
CHLORIDE	2,898	8,709	11,606	47,071
SILICA	430	40,732	41,161	41,265
SUSP SOLID	4,909	19,519	24,428	58,498
OIL	580	217,005	217,585	101,174
SULPHUR	2,385	5,849	8,234	116,951
NH3	872	32,517	33,389	15,434
PHENOL	1	221	221	126
CYANIDE	19	23	42	68
ALUMINUM	616	296	912	793
BORON	0	117	117	52
BROMINE	0	71	71	32
CAESIUM	0	16	17	122
CALCIUM	2,566	46,446	49,011	83,094
CHROMIUM	1	13	14	63
COPPER	4	12	16	932
FLUORIDE	77	73	150	593
IRON	90	1,503	1,594	2,352
LEAD	4	2	5	684
MAGNESIUM	724	16,013	16,737	24,539
MANGANESE	7	252	259	553
MERCURY	0	0	0	0
NICKEL	1	81	82	436
POTASSIUM	421	9,977	10,398	10,335
SODIUM	2,156	17,655	19,810	30,603
TITANIUM	0	299	299	138
ZINC	9	65	74	316
BOD	6,671	44,318	50,988	40,476

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 09/11/76

REGION 6 SEVFRN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	8	138	146	1,665
NITROGEN	354	9,216	9,571	13,837
DISS SOLID	3,677	271,667	275,343	1,705,983
CHLORIDE	521	14,347	14,868	84,645
SILICA	52	1,382	1,434	48,434
SUSP SOLID	275	42,625	42,899	109,729
OIL	38	103,321	103,359	48,097
SULPHUR	421	19,562	19,983	244,877
NH3	820	4,020	4,839	2,597
PHENOL	1	105	107	124
CYANIDE	17	12	29	172
ALUMINUM	579	84	662	969
BORON	0	633	633	284
BROMINE	0	386	386	173
CADMIUM	0	1	1	359
CALCIUM	2,410	66,284	68,695	2,911,781
CHROMIUM	0	134	134	239
COPPER	1	0	9	903
FLUORIDE	72	77	149	3,912
IRON	13	976	989	6,786
LEAD	1	4	5	1,175
MAGNESIUM	131	5,964	6,094	47,407
MANGANESE	6	15	22	693
MERCURY	0	0	0	1
NICKEL	0	35	35	2,750
POTASSIUM	395	2,682	3,078	20,275
SODIUM	2,025	16,304	18,329	64,668
TITANIUM	0	46	46	21
ZINC	1	31	32	863
BOD	6,268	15,620	21,887	32,800

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	26	264	290	381
NITROGEN	266	5,317	5,583	8,981
DISS SOLID	6,790	538,776	545,566	1,774,319
CHLORIDE	963	111,433	112,396	155,908
SILICA	95	8,275	8,369	23,311
SUSP SOLID	694	30,239	30,933	81,190
OIL	65	24,972	25,037	11,552
SULPHUR	778	92,024	92,802	300,876
NH3	300	2,661	2,960	1,370
PHENOL	0	49	49	44
CYANIDE	6	21	27	58
ALUMINUM	212	112	323	2,289
BORON	0	1,171	1,171	524
BROMINE	0	714	714	320
CADMIUM	0	9	9	72
CALCIUM	881	57,880	58,761	304,896
CHROMIUM	0	30	31	98
COPPER	1	4	6	253
FLUORIDE	26	534	560	1,238
IRON	25	3,076	3,098	3,683
LEAD	1	49	49	428
MAGNESIUM	241	8,468	8,709	104,975
MANGANESE	3	215	218	262
MERCURY	0	1	1	1
NICKEL	0	58	58	269
POTASSIUM	145	9,264	9,408	12,230
SODIUM	740	103,068	103,808	165,968
TITANIUM	0	41	41	19
ZINC	3	66	68	1,045
BOD	2,291	13,003	15,294	23,881

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

1973 TREATMENT EFFORT

LOADINGS FOR 1990. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	110	123	233	506
NITROGEN	699	2,599	3,299	4,828
DISS SOLID	12,009	437,657	449,665	1,053,132
CHLORIDE	1,638	2,562	4,200	41,737
SILICA	257	375	631	24,606
SUSP SOLID	2,209	29,654	31,863	52,748
OIL	132	3,744	3,877	2,064
SULPHUR	1,364	6,599	7,964	86,315
NH3	464	35,097	35,561	19,327
PHENOL	1	18	19	37
CYANIDE	10	1	11	36
ALUMINUM	328	728	1,056	1,348
BORON	0	26	26	15
BROMINE	0	16	16	9
CADMIUM	0	0	0	106
CALCIUM	1,364	12,349	13,713	57,490
CHROMIUM	0	15	15	100
COPPER	4	14	17	157
FLUORIDE	40	12	52	879
IRON	51	262	313	5,080
LEAD	3	3	5	330
MAGNESIUM	410	971	1,381	37,576
MANGANESE	4	8	12	427
MERCURY	0	0	0	1
NICKEL	1	8	9	194
POTASSIUM	224	691	914	5,510
SODIUM	1,147	25,070	26,216	63,994
TITANIUM	0	751	751	403
ZINC	5	40	46	221
BOD	3,548	104,072	107,620	169,720

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	72	75	278
NITROGEN	20	853	873	5,726
DISS SOLID	396	285,363	285,759	1,726,967
CHLORIDE	55	947	1,001	125,483
SILICA	7	2,735	2,742	74,274
SUSP SOLID	55	16,234	16,289	228,022
OIL	3	1,447	1,450	781
SULPHUR	45	3,530	3,575	104,569
NH3	15	24,806	24,821	13,522
PHENOL	0	12	12	115
CYANIDE	0	0	1	140
ALUMINUM	11	493	504	539
BORON	0	4	4	2
BROMINE	0	2	2	1
CADMIUM	0	1	1	55
CALCIUM	46	7,402	7,447	4,352
CHROMIUM	0	4	4	125
COPPER	0	2	2	136
FLUORIDE	2	4	6	738
IRON	2	158	159	3,325
LEAD	0	2	2	358
MAGNESIUM	14	1,360	1,373	73,904
MANGANESE	0	21	21	602
MERCURY	0	0	0	2
NICKEL	0	4	4	516
POTASSIUM	7	880	887	20,879
SODIUM	39	16,724	16,762	86,113
TITANIUM	0	510	510	274
ZINC	0	21	21	49
BOD	119	69,773	69,892	78,628

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1970. IN METRIC TONNES.

DATE 03/11/71

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	65
NITROGEN	0	15	15	79,421
DISS SOLID	0	7,890	7,890	406,499
CHLORIDE	0	261	261	9,880
SILICA	0	1,799	1,799	26,834
SUSP SOLID	0	126	126	7,358
OIL	0	438	438	245
SULPHUR	0	29	29	45,868
NH3	0	953	953	632
PHENOL	0	1	1	29
CYANIDE	0	0	0	61
ALUMINUM	0	4	4	169
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	1	1	4
CALCIUM	0	1,571	1,571	67,529
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	4	4	504
LEAD	0	0	0	40
MAGNESIUM	0	643	643	11,995
MANGANESE	0	11	11	4,287
MERCURY	0	0	0	2
NICKEL	0	1	1	40
POTASSIUM	0	409	409	5,467
SODIUM	0	321	321	7,096
TITANIUM	0	4	4	2
ZINC	0	1	1	4
BOD	0	460	460	430

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	95	47	141	472
NITROGEN	637	1,450	2,088	10,700
DISS SOLID	11,598	221,906	233,504	342,530
CHLORIDE	1,583	2,117	3,701	60,239
SILICA	234	442	675	30,804
SUSP SOLID	1,654	16,385	18,040	52,005
OIL	33	395,028	395,061	220,410
SULPHUR	1,319	3,675	4,993	81,688
NH3	448	12,661	13,109	12,774
PHENOL	1	396	396	420
CYANIDE	10	42	52	779
ALUMINUM	317	243	560	24,989
BORON	0	24	24	14
BROMINE	0	15	15	9
CADMIUM	0	0	0	109
CALCIUM	1,319	5,581	6,900	64,620
CHROMIUM	0	8	8	59
COPPER	3	16	20	344,774
FLUORIDE	40	122	161	617
IRON	47	2,597	2,644	5,283
LEAD	3	1	4	650
MAGNESIUM	396	477	873	10,704
MANGANESE	4	6	10	472
MERCURY	0	0	0	0
NICKEL	1	115	116	814
POTASSIUM	216	798	1,014	45,308
SODIUM	1,109	10,580	11,688	18,336
TITANIUM	0	249	249	134
ZINC	5	67	72	294
BOD	3,431	38,952	42,383	38,183

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	206	93	299	1,322
NITROGEN	1,323	2,689	4,012	5,413
DISS SOLID	23,291	583,321	606,613	808,689
CHLORIDE	3,227	10,647	13,873	49,338
SILICA	479	50,062	50,540	50,644
SUSP SOLID	5,466	23,165	28,630	62,700
OIL	646	262,322	262,968	146,557
SULPHUR	2,655	7,116	9,771	118,489
NH3	971	39,029	40,000	22,046
PHENOL	1	266	267	172
CYANIDE	21	29	49	74
ALUMINUM	686	345	1,031	911
BORON	0	151	151	86
BROMINE	0	92	92	52
CADMIUM	0	21	21	125
CALCIUM	2,857	57,064	59,921	94,004
CHROMIUM	1	15	16	66
COPPER	5	14	19	936
FLUORIDE	86	80	174	617
IRON	101	1,816	1,916	2,675
LEAD	4	2	6	685
MAGNESIUM	806	19,696	20,502	28,303
MANGANESE	8	310	317	611
MERCURY	0	0	0	0
NICKEL	1	98	99	454
POTASSIUM	469	12,253	12,722	12,658
SODIUM	2,399	21,139	23,539	34,331
TITANIUM	0	347	347	186
ZINC	10	78	88	330
BOD	7,427	51,675	59,102	48,589

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	9	167	176	1,696
NITROGEN	407	11,184	11,591	15,858
DISS SOLID	4,227	325,584	329,811	1,760,451
CHLORIDE	599	17,523	18,122	87,899
SILICA	59	1,696	1,756	48,756
SUSP SOLID	316	51,617	51,934	118,763
OIL	43	124,908	124,952	69,690
SULPHUR	484	24,430	24,914	249,009
NH3	942	4,775	5,719	3,477
PHENOL	1	128	129	147
CYANIDE	20	14	34	177
ALUMINUM	665	102	768	1,075
BORON	0	815	815	466
BROMINE	0	497	497	284
CADMIUM	0	1	1	359
CALCIUM	2,772	81,816	84,588	2,927,673
CHROMIUM	0	160	160	265
COPPER	1	10	11	904
FLUORIDE	83	94	176	3,940
IRON	14	1,196	1,210	7,007
LEAD	1	5	6	1,176
MAGNESIUM	149	7,547	7,697	49,009
MANGANESE	8	18	26	697
MERCURY	0	1	1	2
NICKEL	0	42	43	2,757
POTASSIUM	455	3,322	3,776	20,975
SODIUM	2,328	20,480	22,808	69,146
TITANIUM	0	53	53	29
ZINC	2	37	39	870
BOD	7,207	18,642	25,849	36,761

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	28	326	354	445
NITROGEN	286	6,487	6,773	10,171
DISS SOLID	7,312	663,098	670,411	1,899,164
CHLORIDE	1,038	138,220	139,258	182,769
SILICA	102	10,266	10,368	25,310
SUSP SOLID	747	36,974	37,722	87,979
OIL	70	30,310	30,380	16,896
SULPHUR	838	114,922	115,760	323,834
NH3	322	3,134	3,457	1,867
PHENOL	0	59	59	56
CYANIDE	7	26	32	63
ALUMINUM	228	139	366	2,332
BORON	0	1,508	1,508	861
BROMINE	0	919	919	526
CADMIUM	0	12	12	75
CALCIUM	949	73,721	74,669	320,804
CHROMIUM	0	36	37	104
COPPER	1	5	7	254
FLUORIDE	29	661	690	1,369
IRON	24	3,826	3,850	4,434
LEAD	1	60	61	440
MAGNESIUM	259	10,868	11,127	107,393
MANGANESE	3	267	270	314
MERCURY	0	2	2	1
NICKEL	0	72	73	283
POTASSIUM	156	11,549	11,705	14,526
SODIUM	797	128,587	129,383	191,543
TITANIUM	0	49	49	26
ZINC	3	82	84	1,060
BOD	2,467	15,597	18,064	26,651

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LOADINGS FOR 2000. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	113	168	281	554
NITROGEN	719	3,607	4,326	5,057
DISS SOLID	12,352	594,015	606,368	1,209,834
CHLORIDE	1,684	3,610	5,294	42,832
SILICA	264	546	810	24,784
SUSP SOLID	2,272	40,513	42,785	63,670
OIL	137	5,310	5,447	3,633
SULPHUR	1,404	9,100	10,503	88,854
NH3	477	47,511	47,989	31,754
PHENOL	1	25	26	43
CYANIDE	10	1	11	36
ALUMINIUM	337	985	1,323	1,615
BORON	0	40	41	30
BROMINE	0	25	25	18
CADMIUM	0	0	0	106
CALCIUM	1,404	17,314	18,718	62,494
CHROMIUM	0	22	23	106
COPPER	4	18	22	161
FLUORIDE	42	16	58	885
IRON	53	359	411	5,179
LEAD	3	4	6	338
MAGNESIUM	421	1,373	1,795	37,990
MANGANESE	4	11	14	429
MERCURY	0	0	0	1
NICKEL	1	11	12	196
POTASSIUM	230	965	1,195	5,791
SODIUM	1,179	34,050	35,229	73,007
TITANIUM	0	1,017	1,017	668
ZINC	5	54	59	234
BOU	3,650	140,883	144,533	206,632

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	4	97	101	304
NITROGEN	23	1,158	1,182	6,034
DISS SOLID	464	387,648	388,111	1,829,318
CHLORIDE	64	1,355	1,418	125,901
SILICA	9	4,208	4,216	75,749
SUSP SOLID	64	21,974	22,037	233,771
OIL	3	1,988	1,991	1,322
SULPHUR	53	4,789	4,841	105,835
NH3	18	33,785	33,803	22,504
PHENOL	0	15	15	120
CYANIDE	0	0	1	140
ALUMINUM	13	668	680	715
BORON	0	5	5	4
BROMINE	0	4	4	3
CADMIUM	0	2	2	56
CALCIUM	53	10,484	10,538	7,442
CHROMIUM	0	4	4	126
COPPER	0	3	3	136
FLUORIDE	2	6	8	740
IRON	2	214	216	3,381
LEAD	0	2	2	359
MAGNESIUM	16	2,026	2,042	74,571
MANGANESE	0	31	31	612
MERCURY	0	0	0	2
NICKEL	0	5	5	517
POTASSIUM	9	1,307	1,316	21,308
SODIUM	45	22,695	22,740	92,092
TITANIUM	0	690	690	454
ZINC	0	28	28	58
BOD	139	94,397	94,536	103,271

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	2	2	65
NITROGEN	0	22	22	79,427
DISS SOLID	0	11,583	11,583	410,192
CHLORIDE	0	401	401	10,021
SILICA	0	2,776	2,776	27,811
SUSP SOLID	0	172	172	7,404
OIL	0	649	649	455
SULPHUR	0	40	40	45,879
NHS	0	1,441	1,441	1,120
PHENOL	0	1	1	29
CYANIDE	0	0	0	61
ALUMINUM	0	4	4	171
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	1	1	4
CALCIUM	0	2,417	2,417	68,376
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	5	5	506
LEAD	0	0	0	40
MAGNESIUM	0	993	993	12,344
MANGANESE	0	17	17	4,292
MERCURY	0	0	0	2
NICKEL	0	1	1	40
POTASSIUM	0	631	631	5,688
SODIUM	0	475	475	7,250
TITANIUM	0	4	4	3
ZINC	0	2	2	4
BOD	0	622	622	593

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

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REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	107	65	172	501
NITROGEN	724	2,061	2,785	11,398
DISS SOLID	13,164	310,785	323,950	432,977
CHLORIDE	1,797	3,068	4,865	61,403
SILICA	266	660	924	31,054
SUSP SOLID	1,877	23,109	24,987	59,852
OIL	38	584,626	584,663	410,013
SULPHUR	1,497	5,232	6,727	83,422
NH3	509	17,270	17,780	17,443
PHENOL	1	585	585	609
CYANIDE	11	63	74	802
ALUMINUM	359	329	688	25,118
BORON	0	38	38	28
BROMINE	0	23	23	17
CADMIUM	0	0	0	109
CALCIUM	1,498	7,980	9,478	67,198
CHROMIUM	0	12	13	63
COPPER	4	24	28	344,782
FLUORIDE	45	180	225	680
IRON	53	3,835	3,888	6,527
LEAD	3	2	4	651
MAGNESIUM	449	696	1,145	10,976
MANGANESE	4	9	14	475
MERCURY	0	0	0	0
NICKEL	1	170	171	869
POTASSIUM	246	1,165	1,410	45,703
SODIUM	1,258	14,660	15,918	22,565
TITANIUM	0	338	338	221
ZINC	6	97	104	325
BOD	3,894	53,283	57,177	52,977

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	248	131	379	1,403
NITROGEN	1,595	3,825	5,420	6,821
DISS SOLID	28,066	828,043	856,108	1,058,184
CHLORIDE	3,887	15,989	19,876	55,340
SILICA	577	77,237	77,814	77,918
SUSP SOLID	6,585	32,357	38,943	73,013
OIL	778	388,180	388,958	272,546
SULPHUR	3,200	10,285	13,485	122,202
NH3	1,170	57,106	58,276	40,321
PHENOL	2	393	395	299
CYANIDE	25	42	67	92
ALUMINUM	826	468	1,294	1,175
BORON	0	235	235	170
BROMINE	0	143	143	104
CAUDIUM	0	32	32	136
CALCIUM	3,442	87,005	90,446	124,529
CHROMIUM	1	23	23	72
COPPER	6	20	26	942
FLUORIDE	104	130	233	676
IRON	122	2,677	2,798	3,556
LEAD	5	3	8	687
MAGNESIUM	972	30,245	31,217	39,018
MANGANESE	10	476	486	780
MERCURY	0	0	0	0
NICKEL	1	147	148	501
POTASSIUM	564	18,818	19,382	19,319
SODIUM	2,891	30,359	33,250	44,042
TITANIUM	0	470	470	309
ZINC	12	115	127	369
BOD	8,949	70,367	79,317	68,804

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	12	238	249	1,769
NITROGEN	505	15,865	16,369	20,636
DISS SOLID	5,241	458,439	463,680	1,894,320
CHLORIDE	742	25,295	26,038	95,815
SILICA	74	2,564	2,638	49,639
SUSP SOLID	392	73,361	73,753	140,583
OIL	53	184,848	184,901	129,640
SULPHUR	600	36,592	37,192	262,087
NH3	1,168	6,690	7,859	5,617
PHENOL	2	190	191	209
CYANIDE	24	22	46	189
ALUMINUM	824	149	973	1,280
BORON	0	1,266	1,266	917
BROMINE	0	772	772	559
CADMIUM	0	1	2	360
CALCIUM	3,437	122,243	125,679	2,968,764
CHROMIUM	0	234	235	339
COPPER	1	14	15	909
FLUORIDE	104	137	240	4,003
IRON	17	1,781	1,798	7,596
LEAD	1	8	9	1,180
MAGNESIUM	185	11,502	11,687	53,000
MANGANESE	10	28	37	709
MERCURY	0	1	1	2
NICKEL	0	63	64	2,777
POTASSIUM	563	4,906	5,469	22,667
SODIUM	2,887	30,803	33,689	80,027
TITANIUM	0	72	72	47
ZINC	2	53	55	886
BOD	8,935	26,087	35,023	45,935

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	32	477	509	599
NITROGEN	320	9,290	9,609	13,008
DISS SOLID	8,166	968,096	976,262	2,205,015
CHLORIDE	1,158	203,963	205,121	248,633
SILICA	113	15,160	15,273	30,215
SUSP SOLID	834	53,294	54,129	104,386
OIL	78	44,824	44,903	31,418
SULPHUR	935	171,242	172,177	380,252
NH3	360	4,312	4,672	3,082
PHENOL	0	88	88	84
CYANIDE	7	38	46	76
ALUMINUM	255	205	460	2,426
BORON	0	2,342	2,342	1,695
BROMINE	0	1,427	1,427	1,033
CADMIUM	0	17	17	80
CALCIUM	1,059	113,128	114,188	360,323
CHROMIUM	0	53	54	122
COPPER	1	8	10	257
FLUORIDE	32	976	1,009	1,688
IRON	27	5,678	5,705	6,289
LEAD	1	89	91	470
MAGNESIUM	290	16,791	17,080	113,347
MANGANESE	3	394	398	442
MERCURY	0	2	2	2
NICKEL	0	107	107	318
POTASSIUM	174	17,159	17,332	20,155
SODIUM	890	191,327	192,217	254,377
TITANIUM	0	66	66	43
ZINC	3	120	122	1,099
BOD	2,755	21,987	24,742	33,329

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

1973 TREATMENT EFFORT

LOADINGS FOR 2010. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	117	237	354	627
NITROGEN	745	5,107	5,852	7,382
DISS SOLID	12,802	835,808	848,610	1,452,077
CHLORIDE	1,746	5,183	6,929	44,466
SILICA	274	831	1,104	25,079
SUSP SOLID	2,354	57,176	59,530	80,415
OIL	141	7,872	8,014	6,200
SULPHUR	1,454	13,003	14,458	92,808
NH3	495	66,880	67,375	51,141
PHENOL	1	36	37	54
CYANIDE	11	1	12	37
ALUMINUM	349	1,388	1,737	2,029
BORON	0	64	64	53
BROMINE	0	39	39	32
CADMIUM	0	0	0	106
CALCIUM	1,454	25,312	26,766	70,543
CHROMIUM	0	33	33	118
COPPER	4	26	29	169
FLUORIDE	43	23	67	894
IRON	55	511	566	5,332
LEAD	3	5	8	340
MAGNESIUM	437	2,004	2,441	38,635
MANGANESE	4	15	20	435
MERCURY	0	0	0	1
NICKEL	1	15	16	201
POTASSIUM	239	1,387	1,625	6,221
SODIUM	1,222	48,054	49,275	87,053
TITANIUM	0	1,431	1,431	1,082
ZINC	5	76	82	257
BOD	3,782	198,261	202,043	264,143

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	4	138	141	345
NITROGEN	27	1,634	1,661	6,513
DISS SOLID	537	547,229	547,767	1,988,974
CHLORIDE	74	2,021	2,094	126,577
SILICA	10	6,739	6,749	78,281
SUSP SOLID	74	30,920	30,993	242,726
OIL	4	2,845	2,849	2,180
SULPHUR	61	6,752	6,813	107,807
NH3	21	47,900	47,920	36,621
PHENOL	0	22	22	126
CYANIDE	0	0	1	141
ALUMINUM	14	940	954	989
BORON	0	8	8	7
BROMINE	0	5	5	4
CAESIUM	0	3	3	57
CALCIUM	62	15,499	15,561	12,465
CHROMIUM	0	6	6	128
COPPER	0	4	4	138
FLUORIDE	2	9	11	742
IRON	2	302	304	3,470
LEAD	0	3	3	360
MAGNESIUM	19	3,146	3,164	75,694
MANGANESE	0	48	48	629
MERCURY	0	0	0	2
NICKEL	0	8	8	520
POTASSIUM	10	2,025	2,035	22,027
SODIUM	52	32,042	32,094	101,445
TITANIUM	0	971	971	734
ZINC	0	40	40	69
BOD	161	132,820	132,981	141,717

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	3	3	66
NITROGEN	0	33	33	79,439
DISS SOLID	0	17,613	17,613	416,222
CHLORIDE	0	641	641	10,260
SILICA	0	4,457	4,457	29,492
SUSP SOLID	0	243	243	7,475
OIL	0	1,003	1,003	810
SULPHUR	0	56	56	45,895
NH3	0	2,273	2,273	1,951
PHENOL	0	1	1	30
CYANIDE	0	0	0	61
ALUMINUM	0	6	6	173
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	2	2	5
CALCIUM	0	3,873	3,873	69,831
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	8	8	509
LEAD	0	0	0	40
MAGNESIUM	0	1,591	1,591	12,942
MANGANESE	0	27	27	4,303
MERCURY	0	0	0	2
NICKEL	0	2	2	41
POTASSIUM	0	1,012	1,012	6,070
SODIUM	0	733	733	7,509
TITANIUM	0	6	6	4
ZINC	0	3	3	5
BOD	0	877	877	847

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010, IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	122	92	214	544
NITROGEN	829	3,014	3,843	12,456
DISS SOLID	15,078	453,560	468,637	577,663
CHLORIDE	2,058	4,537	6,595	63,133
SILICA	304	1,023	1,327	31,456
SUSP SOLID	2,150	33,871	36,022	70,888
OIL	43	905,237	905,200	730,629
SULPHUR	1,714	7,698	9,411	86,107
NH3	583	24,524	25,107	24,771
PHENOL	1	904	905	930
CYANIDE	13	98	111	838
ALUMINUM	411	463	875	25,304
BORON	0	59	59	49
BROMINE	0	36	36	30
CADMIUM	0	0	1	109
CALCIUM	1,715	11,897	13,613	71,332
CHROMIUM	0	18	19	69
COPPER	4	37	41	344,795
FLUORIDE	51	277	329	785
IRON	61	5,922	5,983	8,622
LEAD	4	3	6	652
MAGNESIUM	515	1,043	1,558	11,389
MANGANESE	4	14	19	481
MERCURY	0	0	0	0
NICKEL	1	264	264	963
POTASSIUM	282	1,764	2,045	46,337
SODIUM	1,441	21,101	22,541	29,188
TITANIUM	0	475	475	359
ZINC	7	149	156	378
BOD	4,459	75,888	80,348	76,148

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	302	191	493	1,517
NITROGEN	1,936	5,553	7,489	8,890
DISS SOLID	34,072	1,208,152	1,242,224	1,444,300
CHLORIDE	4,720	24,810	29,529	64,994
SILICA	700	123,983	124,683	124,787
SUSP SOLID	7,995	46,532	54,526	88,597
OIL	945	600,979	601,924	485,513
SULPHUR	3,884	15,245	19,129	127,846
NH3	1,421	87,264	88,685	70,730
PHENOL	2	607	609	513
CYANIDE	30	65	95	121
ALUMINUM	1,003	661	1,663	1,544
BORON	0	367	367	302
BROMINE	0	224	224	185
CADMIUM	1	50	50	156
CALCIUM	4,179	137,798	141,977	176,060
CHROMIUM	2	34	36	85
COPPER	8	30	38	954
FLUORIDE	125	199	325	768
IRON	147	4,125	4,271	5,030
LEAD	6	4	10	688
MAGNESIUM	1,180	48,211	49,391	57,192
MANGANESE	12	764	776	1,069
MERCURY	0	0	0	0
NICKEL	2	229	230	583
POTASSIUM	685	30,047	30,732	30,669
SODIUM	3,510	45,302	48,812	59,604
TITANIUM	0	661	661	500
ZINC	14	176	190	432
BOD	10,864	99,644	110,509	99,996

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	14	341	355	1,074
NITROGEN	623	22,604	23,227	27,493
DISS SOLID CHLORIDE	6,468	653,821	660,289	2,090,929
SILICA	92	37,006	37,922	107,699
SUSP SOLID	483	4,018	4,501	51,110
OIL	483	105,394	105,878	172,707
SULPHUR	66	286,181	286,248	230,986
NH3	741	55,896	56,637	281,532
PHENOL	1,442	9,654	11,096	8,854
CYANIDE	2	293	295	313
ALUMINUM	31	32	63	206
BORON	1,018	221	1,238	1,545
BROMINE	0	1,983	1,983	1,633
CADMIUM	0	1,209	1,209	995
CALCIUM	0	2	2	361
CHROMIUM	4,241	189,545	193,786	3,036,872
COPPER	0	369	369	473
FLUORIDE	1	22	23	916
IRON	127	210	337	4,100
LEAD	22	2,750	2,771	8,569
MAGNESIUM	1	13	14	1,184
MANGANESE	230	17,784	18,014	59,326
MERCURY	12	42	54	725
NICKEL	0	1	1	2
POTASSIUM	0	98	98	2,813
SODIUM	696	7,342	8,038	25,236
TITANIUM	3,562	46,989	50,551	96,890
ZINC	0	101	101	77
BOD	3	79	81	913
	11,027	37,300	48,327	59,241

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

CATF 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	35	706	742	832
NITROGEN	362	13,391	13,752	17,150
DISS SOLID	9,226	1,431,539	1,440,765	2,669,518
CHLORIDE	1,309	304,677	305,986	349,498
SILICA	129	22,665	22,793	37,735
SUSP SOLID	943	77,624	78,566	128,824
OIL	88	68,994	69,082	55,597
SULPHUR	1,057	258,311	259,367	467,442
NH3	407	6,116	6,524	4,934
PHENOL	1	134	134	130
CYANIDE	9	58	66	96
ALUMINUM	287	311	598	2,565
BORON	0	3,666	3,666	3,020
BROMINE	0	2,235	2,235	1,841
CADMIUM	0	25	25	88
CALCIUM	1,197	176,063	177,260	423,395
CHROMIUM	0	82	83	150
COPPER	2	13	14	261
FLUORIDE	36	1,462	1,498	2,176
IRON	31	8,544	8,574	9,158
LEAD	1	134	135	514
MAGNESIUM	328	26,173	26,501	122,766
MANGANESE	4	589	593	637
MERCURY	0	4	4	3
NICKEL	0	161	162	372
POTASSIUM	196	25,794	25,991	28,813
SODIUM	1,005	288,193	289,198	351,358
TITANIUM	0	93	93	70
ZINC	4	178	181	1,157
BOD	3,112	31,706	34,818	43,405

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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1973 TREATMENT EFFORT

LOADINGS FOR 2020. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	122	353	474	748
NITROGEN	774	7,566	8,340	9,870
DISS SOLID CHLORIDE	13,294	1,243,544	1,256,838	1,860,305
CHLORIDE	1,813	7,778	9,590	47,128
SILICA	284	1,331	1,615	25,589
SUSP SOLID	2,445	85,169	87,614	108,500
OIL	147	12,400	12,547	10,733
SULPHUR	1,510	19,665	21,176	99,527
NH3	514	99,820	100,334	84,099
PHENOL	1	54	55	72
CYANIDE	11	2	13	38
ALUMINUM	363	2,071	2,434	2,726
BORON	0	105	105	95
BROMINE	0	64	64	58
CADMIUM	0	0	1	106
CALCIUM	1,510	39,323	40,833	84,610
CHROMIUM	0	54	55	139
COPPER	4	39	42	182
FLUORIDE	45	35	81	908
IRON	57	772	829	5,595
LEAD	3	7	11	343
MAGNESIUM	454	3,088	3,541	39,736
MANGANESE	4	24	28	443
MERCURY	0	0	0	1
NICKEL	1	23	24	209
POTASSIUM	248	2,097	2,345	6,941
SODIUM	1,269	71,879	73,148	110,926
TITANIUM	0	2,136	2,136	1,787
ZINC	6	113	120	294
BOU	3,928	295,779	299,706	361,806

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	4	205	210	413
NITROGEN	32	2,444	2,474	7,327
DISS SOLID	622	818,204	818,905	2,260,113
CHLORIDE	86	3,191	3,266	127,749
SILICA	12	11,274	11,285	82,817
SUSP SOLID	86	46,122	46,208	257,941
OIL	4	4,323	4,327	3,659
SULPHUR	71	10,092	10,162	111,156
NH3	24	72,009	72,033	60,734
PHENOL	0	32	32	137
CYANIDE	1	1	1	141
ALUMINUM	17	1,401	1,418	1,454
BORON	0	14	14	13
BROMINE	0	8	8	7
CADMIUM	0	4	4	50
CALCIUM	72	24,242	24,313	21,218
CHROMIUM	0	10	10	131
COPPER	0	5	5	140
FLUORIDE	2	14	15	747
IRON	3	451	454	3,619
LEAD	0	4	4	361
MAGNESIUM	22	5,130	5,152	77,681
MANGANESE	0	79	79	661
MERCURY	0	0	0	2
NICKEL	0	12	12	524
POTASSIUM	12	3,298	3,309	23,301
SODIUM	60	47,969	48,029	117,381
TITANIUM	0	1,449	1,449	1,212
ZINC	0	60	60	89
BOD	186	198,175	198,360	207,095

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	4	4	68
NITROGEN	0	54	54	79,459
DISS SOLID	0	28,067	28,067	426,676
CHLORIDE	0	1,069	1,069	10,688
SILICA	0	7,472	7,472	32,507
SUSP SOLID	0	363	363	7,595
OIL	0	1,646	1,646	1,453
SULPHUR	0	83	83	45,922
NH3	0	3,755	3,755	3,434
PHENOL	0	2	2	30
CYANIDE	0	0	0	61
ALUMINUM	0	9	9	176
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	3	3	6
CALCIUM	0	6,480	6,480	72,438
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	1	1	394
IRON	0	13	13	513
LEAD	0	0	0	40
MAGNESIUM	0	2,664	2,664	14,016
MANGANESE	0	46	46	4,321
MERCURY	0	0	0	2
NICKEL	0	4	4	42
POTASSIUM	0	1,696	1,696	6,753
SODIUM	0	1,192	1,192	7,967
TITANIUM	0	9	9	8
ZINC	0	4	4	7
BOD	0	1,310	1,310	1,280

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	141	138	279	609
NITROGEN	951	4,643	5,595	14,208
DISS SOLID	17,318	702,112	719,429	828,455
CHLORIDE	2,364	7,001	9,365	65,903
SILICA	349	1,668	2,016	32,145
SUSP SOLID	2,470	52,591	55,060	89,925
OIL	49	1,486,167	1,486,217	1,311,566
SULPHUR	1,968	11,958	13,927	90,622
NH3	670	36,949	37,620	37,283
PHENOL	1	1,484	1,484	1,508
CYANIDE	14	161	175	903
ALUMINUM	473	691	1,164	25,593
BORON	0	98	98	88
BROMINE	0	60	60	54
CADMIUM	0	1	1	109
CALCIUM	1,970	18,854	20,824	78,544
CHROMIUM	0	31	31	81
COPPER	4	60	66	344,819
FLUORIDE	59	455	513	969
IRON	70	9,698	9,768	12,407
LEAD	4	4	8	654
MAGNESIUM	591	1,652	2,244	12,074
MANGANESE	5	22	28	489
MERCURY	0	0	0	0
NICKEL	1	432	433	1,131
POTASSIUM	323	2,822	3,146	47,438
SODIUM	1,655	32,169	33,824	40,471
TITANIUM	0	708	708	593
ZINC	8	241	249	471
BOD	5,122	114,695	119,817	115,618

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	368	295	663	1,687
NITROGEN	2,361	8,437	10,798	12,199
DISS SOLID CHLORIDE	41,558	1,845,140	1,886,698	2,088,774
SILICA	5,756	40,245	46,002	81,466
SUSP SOLID	854	207,795	208,649	208,752
OIL	9,752	70,447	80,198	114,269
SULPHUR	1,152	986,518	987,670	871,258
NH3	4,738	23,819	28,557	137,274
PHENOL	1,733	140,507	142,241	124,286
CYANIDE	2	995	997	902
ALUMINUM	37	106	143	168
BORON	1,223	989	2,212	2,093
BROMINE	0	606	606	541
CADMIUM	0	369	369	329
CALCIUM	1	85	85	190
CHROMIUM	5,097	228,746	233,843	267,926
COPPER	2	58	59	108
FLUORIDE	9	48	58	974
IRON	153	324	477	920
LEAD	179	6,739	6,918	7,676
MAGNESIUM	8	5	14	692
MANGANESE	1,439	80,300	81,739	89,540
MERCURY	14	1,279	1,293	1,588
NICKEL	0	1	1	1
POTASSIUM	2	376	378	732
SODIUM	836	50,136	50,972	50,909
TITANIUM	4,281	71,413	75,694	86,486
ZINC	0	985	985	824
BOD	17	283	301	543
	13,252	149,615	162,866	152,354

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	18	507	526	2,045
NITROGEN	810	33,379	34,189	38,455
DISS SOLID CHLORIDE	8,412	966,352	974,764	2,405,404
SILICA	1,193	56,340	57,532	127,309
SUSP SOLID	119	6,585	6,704	53,705
OIL	629	157,604	158,233	225,062
SULPHUR	86	469,754	469,840	414,578
NH3	963	89,859	90,822	315,716
PHENOL	1,876	14,666	16,541	14,299
CYANIDE	2	481	483	501
ALUMINUM	40	54	94	236
BORON	1,324	348	1,672	1,979
BROMINE	0	3,266	3,266	2,917
CADMIUM	0	1,991	1,991	1,778
CALCIUM	0	4	4	362
CHROMIUM	5,516	311,798	317,313	3,160,399
COPPER	0	622	623	727
FLUORIDE	1	33	35	929
IRON	166	338	503	4,267
LEAD	28	4,488	4,516	10,314
MAGNESIUM	1	20	22	1,192
MANGANESE	298	28,933	29,231	70,544
MERCURY	15	68	83	755
NICKEL	0	2	2	3
POTASSIUM	0	160	160	2,875
SODIUM	904	11,500	12,405	29,603
TITANIUM	4,633	75,270	79,903	126,242
ZINC	0	150	150	126
BOD	3	124	127	958
	14,342	55,896	70,238	81,150

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	40	1,085	1,126	1,217
NITROGEN	413	20,003	20,415	23,813
DISS SOLID	10,535	2,192,456	2,202,991	3,431,743
CHLORIDE	1,495	471,178	472,673	516,184
SILICA	147	35,075	35,221	50,162
SUSP SOLID	1,076	117,368	118,445	168,701
OIL	101	112,208	112,308	98,824
SULPHUR	1,207	405,053	406,260	614,335
NH3	464	9,147	9,611	8,021
PHENOL	1	213	214	210
CYANIDE	10	89	99	130
ALUMINUM	329	500	827	2,794
BORON	0	6,040	6,040	5,393
BROMINE	0	3,682	3,682	3,288
CADMIUM	0	39	39	102
CALCIUM	1,367	288,822	290,188	536,323
CHROMIUM	1	135	136	203
COPPER	2	20	22	268
FLUORIDE	41	2,264	2,305	2,984
IRON	35	13,352	13,387	13,971
LEAD	2	208	209	588
MAGNESIUM	374	42,933	43,306	139,573
MANGANESE	4	913	916	961
MERCURY	0	5	5	5
NICKEL	1	252	253	464
POTASSIUM	224	40,282	40,506	43,329
SODIUM	1,148	450,994	452,142	514,302
TITANIUM	0	138	138	115
ZINC	4	275	279	1,255
BOD	3,554	47,866	51,420	60,007

BASE SCENARIO

U.S.A.

LOADING SUMMARY

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 1974. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	230	31	259	1,841 ✓	377	109	486	1,000 2,398
NITROGEN	843	1,270	2,065	19,747	1,616	3,465	5,080	29,221
DISS SOLID	35,815	75,494	111,308	2,423,600	81,487	585,162	666,649	4,174,413
CHLORIDE	5,134	6,987	12,120	109,208	11,910	116,951	128,861	471,890
SILICA	362	9,123	9,485	208,415	686	809	1,495	96,556
SUSP SOLID	8,685	53,222	61,908	23,192,100	16,556	541,795	558,351	689,685
OIL	534	706	1,239	18,688	1,284	860	2,145	31,398
SULPHUR	10,206	5,282	15,489	180,658	23,314	36,407	59,720	479,150
HNS	822	238	1,059	2,318	1,976	989	2,966	2,309
PHENOL	0	34	35	155	1	18	19	253
CYANIDE	26	3	29	90	64	14	77	2
ALUMINIUM	880	195	1,075	0	2,118	194	2,312	0
BORON	0	24	25	0	0	1,714	1,714	0
BROMINE	0	15	15	0	0	1,045	1,045	0
CAESIUM	3	4	7	32	7	1	7	18
CALCIUM	8,947	12,853	21,801	319,174	21,527	98,726	120,253	715,096
CHROMIUM	44	2	46	181	130	2	131	6
COPPER	69	4	74	641	122	1	122	56
FLUORIDE	110	24	134	4,168	265	93	357	2,933
IRON	1,481	199	1,679	40,478	3,024	982	4,006	22,216
LEAD	34	5	40	754	62	7	70	87
MAGNESIUM	2,640	3,662	6,303	216,007	6,125	12,337	18,462	208,358
MANGANESE	2,786	62	2,849	1,363	6,705	19	6,724	335
MERCURY	0	0	0	12	0	0	0	2
NICKEL	41	5	47	219	95	4	99	81
POTASSIUM	1,188	2,483	3,671	43,690	2,858	3,186	6,044	27,806
SODIUM	9,387	10,444	19,831	96,579	22,586	35,417	58,002	211,988
TITANIUM	0	200	200	0	0	93	93	0
ZINC	98	89	187	1,013	201	59	260	210
BOU	14,521	8,956	23,477	57,889	34,938	6,953	41,891	49,003

UPPER LAKES PREFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 1980. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	232	35	266	1,850	410	134	544	1,069 2,457
NITROGEN	854	1,400	2,255	19,936	1,758	4,207	5,965	30,106
DISS SOLID	36,250	84,829	121,079	2,433,371	88,691	741,518	830,209	4,337,974
CHLORIDE	5,196	7,987	13,183	110,271	12,963	148,663	161,626	504,655
SILICA	366	9,501	9,957	208,887	746	871	1,617	96,678
SUSP SOLID	8,798	59,979	68,776	23,198,968	18,023	694,093	712,114	843,449
OIL	541	826	1,367	18,815	1,398	995	2,393	31,648
SULPHUR	10,330	5,998	16,328	181,498	25,375	45,183	70,557	489,987
PHS	832	267	1,098	2,356	2,151	1,199	3,350	2,693
PHENOL	0	41	41	162	1	23	24	257
CYANIDE	27	3	30	91	69	14	84	9
ALUMINUM	891	237	1,127	52	2,305	250	2,555	243
BORON	0	33	33	8	0	2,214	2,214	500
BROMINE	0	20	20	5	0	1,350	1,350	305
CADMIUM	3	4	7	32	7	1	8	18
CALCIUM	9,056	14,454	23,510	320,883	23,431	125,914	149,343	744,187
CHROMIUM	45	2	47	182	141	2	142	18
COPPER	70	4	75	642	132	2	134	67
FLUORIDE	112	25	137	4,171	288	103	391	2,966
IRON	1,499	219	1,717	40,516	3,291	1,170	4,460	22,670
LEAD	34	6	40	754	68	9	77	94
MAGNESIUM	2,672	3,948	6,620	216,324	6,666	15,878	22,544	212,441
MANGANESE	2,821	66	2,886	1,400	7,298	20	7,318	929
MERCURY	0	0	0	12	0	0	1	2
NICKEL	41	6	48	220	104	4	108	89
POTASSIUM	1,202	2,648	3,850	43,870	3,111	3,918	7,029	28,790
SODIUM	9,501	12,177	21,678	98,426	24,583	43,960	68,543	222,529
TITANIUM	0	242	242	42	0	119	119	26
ZINC	99	106	205	1,032	218	73	291	240
BOO	14,697	10,721	25,419	59,831	38,027	8,487	46,513	53,625

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 1985. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	238	39	276	1,859	445	160	605	1,124 2,517
NITROGEN	873	1,525	2,398	20,080	1,904	4,945	6,849	30,990
DISS SOLID	37,039	93,008	130,046	2,442,338	96,058	897,440	993,498	4,501,263
CHLORIDE	5,309	8,937	14,245	111,334	14,039	180,261	194,300	537,330
SILICA	374	9,901	10,274	209,205	809	1,023	1,832	96,892
SUSP SOLID	8,998	64,124	73,123	23,203,315	19,524	840,098	859,621	990,957
OIL	554	953	1,508	18,956	1,514	1,162	2,676	31,930
SULPHUR	10,555	6,820	17,375	182,545	27,482	54,393	81,876	501,305
HHS	850	290	1,139	2,398	2,329	1,400	3,730	3,074
PHENOL	1	49	49	168	1	27	28	262
CYANIDE	27	3	30	92	75	16	91	16
ALUMINUM	910	275	1,186	111	2,496	301	2,797	485
BORON	0	36	36	12	0	2,693	2,693	979
BROMINE	0	23	23	7	0	1,642	1,642	597
CADMIUM	3	4	7	33	8	1	9	19
CALCIUM	9,253	15,597	24,850	322,223	25,376	151,994	177,370	772,213
CHROMIUM	46	2	48	184	152	2	155	30
COPPER	72	4	77	643	143	2	145	77
FLUORIDE	113	29	143	4,177	312	118	430	3,006
IRON	1,532	247	1,778	40,577	3,565	1,376	4,941	23,151
LEAD	35	6	41	756	74	11	85	101
MAGNESIUM	2,731	4,122	6,853	216,557	7,220	19,271	26,491	216,387
MANGANESE	2,882	68	2,950	1,465	7,904	23	7,927	1,538
MERCURY	0	0	0	12	0	0	1	2
NICKEL	42	7	49	221	113	5	118	99
POTASSIUM	1,229	2,780	4,009	44,028	3,370	4,701	8,070	29,831
SODIUM	9,707	14,024	23,731	100,480	26,624	52,992	79,616	233,600
TITANIUM	0	283	283	83	0	140	140	48
ZINC	102	123	224	1,051	236	84	320	270
BOU	15,017	12,337	27,354	61,767	41,184	9,904	51,088	58,199

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 1990. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	254	44	298	1,880	504	192	696	1,216 2,609
NITROGEN	933	1,661	2,594	20,276	2,159	5,808	7,967	32,108
DISS SOLID	39,596	102,670	142,268	2,454,558	108,837	1,083,541	1,192,377	4,700,142
CHLORIDE	5,675	10,073	15,748	112,837	15,907	217,994	233,900	576,929
SILICA	401	10,201	10,680	209,611	916	1,223	2,139	97,200
SUSP SOLID	9,633	68,728	78,360	23,208,552	22,149	1,012,812	1,034,961	1,166,296
OIL	594	1,104	1,699	19,148	1,718	1,363	3,082	32,335
SULPHUR	11,284	7,822	19,106	184,276	31,138	65,465	96,603	516,033
NH3	908	315	1,223	2,482	2,639	1,632	4,271	3,614
PHENOL	1	57	57	177	2	32	33	266
CYANIDE	29	3	32	94	85	18	103	28
ALUMINIUM	975	322	1,295	221	2,828	359	3,187	875
BORON	0	40	40	15	0	3,261	3,262	1,547
BROMINE	0	24	24	9	0	1,988	1,988	943
CADMIUM	4	4	8	33	9	1	10	20
CALCIUM	9,892	16,901	26,792	324,167	28,749	182,906	211,655	806,497
CHROMIUM	49	3	51	187	173	3	176	50
COPPER	77	4	82	649	162	2	164	97
FLUORIDE	122	33	156	4,189	354	137	491	3,066
IRON	1,638	283	1,921	40,720	4,041	1,622	5,662	23,872
LEAD	38	7	45	759	84	13	96	113
MAGNESIUM	2,919	4,323	7,241	216,946	8,180	23,292	31,473	221,369
MANGANESE	3,081	72	3,154	1,668	8,954	28	8,983	2,593
MERCURY	0	0	0	12	1	0	1	2
NICKEL	45	7	53	224	127	6	133	115
POTASSIUM	1,313	2,940	4,254	44,273	3,818	5,643	9,460	31,221
SODIUM	10,378	16,247	26,625	103,373	30,163	63,852	94,015	248,000
TITANIUM	0	330	330	131	0	165	165	72
ZINC	109	143	251	1,077	267	97	365	314
SDI	16,053	14,225	30,279	64,692	46,658	11,515	58,171	65,283

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 2000. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	264	56	320	1,902	570	270	841	4,360 2,753
NITROGEN	968	2,030	2,999	20,680	2,440	7,931	10,371	34,511
DISS SOLID	41,041	128,306	169,346	2,481,638	123,006	1,556,952	1,679,958	5,187,722
CHLORIDE	5,882	13,010	18,892	115,980	17,978	314,110	332,087	675,116
SILICA	415	11,508	11,923	210,854	1,036	1,668	2,704	97,764
SUSP SOLID	10,002	82,708	92,750	23,222,941	25,038	1,454,753	1,479,791	1,611,126
OIL	618	1,482	2,101	19,549	1,943	1,834	3,776	33,031
SULPHUR	11,696	10,269	21,965	187,134	35,192	93,250	128,442	547,871
HNS	941	384	1,326	2,584	2,983	2,196	5,179	4,522
PHENOL	1	77	77	198	2	43	45	278
CYANIDE	31	4	33	95	96	21	117	42
ALUMINIUM	1,008	441	1,449	374	3,196	508	3,704	1,391
BORON	0	52	52	28	0	4,722	4,722	3,009
BROMINE	0	32	32	17	0	2,879	2,879	1,834
CADMIUM	4	5	8	34	10	2	12	22
CALCIUM	10,252	20,623	30,875	328,249	32,490	262,176	294,667	889,510
CHROMIUM	51	4	54	190	195	4	199	74
COPPER	80	5	86	652	184	3	186	119
FLUORIDE	126	44	170	4,204	400	178	578	3,155
IRON	1,698	368	2,066	40,865	4,567	2,211	6,779	24,989
LEAD	39	9	48	761	95	18	113	130
MAGNESIUM	3,025	4,959	7,984	217,688	9,246	33,622	42,868	232,764
MANGANESE	3,193	83	3,277	1,791	10,120	39	10,158	3,769
MERCURY	0	0	0	12	1	0	1	2
NICKEL	47	9	56	228	144	9	152	134
POTASSIUM	1,362	3,402	4,763	44,782	4,315	7,987	12,302	34,063
SODIUM	10,757	21,788	32,545	109,293	34,088	91,026	125,114	279,099
TITANIUM	0	452	452	252	0	226	226	133
ZINC	113	193	305	1,132	302	128	430	380
BOJ	16,639	19,075	35,714	70,127	52,730	15,434	68,164	75,276

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 2010. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	262	72	334	1,916	605	367	972	4,491 2,884
NITROGEN	964	2,525	3,489	21,172	2,588	10,533	13,122	37,263
DISS SOLID	40,854	160,940	201,794	2,514,085	130,522	2,154,029	2,284,550	5,792,314
CHLORIDE	5,855	16,626	22,481	119,569	19,076	435,494	454,569	797,599
SILICA	413	13,263	13,676	212,607	1,099	2,138	3,236	98,297
SUSP SOLID	9,968	102,518	112,486	23,242,677	26,551	2,016,743	2,043,294	2,174,630
OIL	617	1,949	2,567	20,015	2,060	2,379	4,438	33,692
SULPHUR	11,642	13,191	24,834	190,004	37,343	127,768	165,110	584,540
PHS	937	476	1,413	2,671	3,165	2,888	6,053	5,396
PHENCL	1	104	104	224	2	57	58	292
CYANIDE	30	4	34	95	102	24	126	51
ALUMINIUM	1,003	592	1,596	521	3,391	696	4,087	1,775
BORON	0	72	72	47	0	6,587	6,588	4,873
BROMINE	0	44	44	29	0	4,016	4,016	2,971
CADMIUM	4	5	9	35	11	2	13	23
CALCIUM	10,206	25,682	35,887	333,261	34,478	362,911	397,389	992,231
CHROMIUM	50	4	55	191	207	4	212	87
COPPER	79	6	86	652	194	3	198	131
FLUORIDE	125	55	180	4,215	424	224	648	3,224
IRON	1,691	467	2,158	40,957	4,845	2,920	7,764	25,074
LEAD	39	11	49	763	100	23	124	140
MAGNESIUM	3,011	5,863	8,875	210,579	9,811	46,792	56,603	246,499
MANGANESE	3,179	98	3,277	1,791	10,739	49	10,788	4,399
MERCURY	0	0	0	12	1	0	1	2
NICKEL	47	11	58	230	153	11	164	145
POTASSIUM	1,355	4,019	5,375	45,393	4,578	10,879	15,458	37,219
SODIUM	10,707	28,617	39,325	116,073	36,174	124,682	160,856	314,841
TITANIUM	0	607	607	407	0	302	302	210
ZINC	112	257	369	1,195	320	166	486	436
BOU	16,564	25,286	41,848	76,262	55,956	20,202	76,158	83,270

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY, 1973 TREATMENT EFFORT

LOADINGS FOR 2020. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	276	88	365	1,947	670	477	1,148	3,061
NITROGEN	1,014	2,973	3,987	21,668	2,871	13,441	16,312	40,452
DISS SOLID	42,957	192,564	235,521	2,547,813	144,763	2,820,497	2,965,261	6,473,025
CHLORIDE	6,157	20,137	26,294	123,382	21,157	571,001	592,158	935,188
SILICA	435	14,685	15,120	214,050	1,219	2,768	3,987	99,048
SUSP SOLID	10,497	118,263	128,759	23,258,952	29,455	2,638,106	2,667,562	2,798,897
OIL	652	2,483	3,135	20,583	2,285	3,026	5,311	34,564
SULPHUR	12,242	16,489	28,730	193,900	41,417	166,840	208,257	627,687
THO	985	568	1,553	2,811	3,511	3,666	7,176	6,519
PHENOL	1	133	133	254	2	72	74	307
CYANIDE	32	4	36	98	113	29	141	67
ALUMINIUM	1,056	760	1,816	741	3,761	898	4,659	2,347
BORON	0	81	81	57	0	8,647	8,647	6,934
BROMINE	0	49	49	34	0	5,271	5,271	4,226
CADMIUM	4	6	10	36	12	3	14	24
CALCIUM	10,731	30,220	40,951	338,325	38,239	473,549	511,788	1,106,630
CHROMIUM	53	5	59	194	230	5	235	111
COPPER	84	7	91	658	216	4	220	152
FLUORIDE	132	69	202	4,235	470	283	752	3,328
IRON	1,778	593	2,372	41,170	5,374	3,746	9,121	27,330
LEAD	40	13	53	768	111	31	142	159
MAGNESIUM	3,166	6,556	9,722	219,426	10,881	61,330	72,212	262,108
MANGANESE	3,343	112	3,455	1,968	11,911	64	11,975	5,585
MERCURY	0	0	0	12	1	0	1	3
NICKEL	49	14	63	234	169	14	184	165
POTASSIUM	1,425	4,583	6,007	46,027	5,078	14,176	19,254	41,015
SODIUM	11,259	36,346	47,605	124,354	40,119	162,852	202,972	356,956
TITANIUM	0	779	779	580	0	382	382	289
ZINC	118	329	446	1,273	356	206	562	511
BOD	17,416	32,060	49,475	83,888	62,059	25,344	87,404	94,515

BASE SCENARIO

U.S.A.

CAPITAL COSTS

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
 UPPER LAKES REFERENCE GROUP
 WASTELOADING SIMULATION MODEL

DATE 04/20/76

ECONOMIC SUMMARY
 CAPITAL INVESTMENT ONLY
 1973 TREATMENT EFFORT
 1972 CONSTANT U.S. DOLLAR

U. S. A.

YEAR	LAKE SUPERIOR				LAKE HURON			
	INDUSTRIAL		MUNICIPAL		INDUSTRIAL		MUNICIPAL	
	ITMI11	ITMI13	MTMI11	MTMI13	ITMI11	ITMI13	MTMI11	MTMI13
1974.	\$871,782	\$871,782	\$189,433	\$189,433	\$3,984,530	\$3,984,530	\$788,087	\$788,087
1980.	\$931,485	\$931,485	\$167,196	\$167,196	\$4,848,715	\$4,848,715	\$775,236	\$775,236
1985.	\$1,043,364	\$1,043,364	\$211,365	\$211,365	\$5,741,915	\$5,741,915	\$961,818	\$961,818
1990.	\$1,204,205	\$1,204,205	\$282,302	\$282,302	\$6,779,460	\$6,779,460	\$1,262,682	\$1,262,682
2000.	\$1,624,273	\$1,624,273	\$175,780	\$175,780	\$9,200,188	\$9,200,188	\$888,197	\$888,197
2010.	\$2,044,908	\$2,044,908	\$177,594	\$177,594	\$11,862,897	\$11,862,897	\$900,030	\$900,030
2020.	\$2,244,589	\$2,244,589	\$270,782	\$270,782	\$14,402,142	\$14,402,142	\$1,319,842	\$1,319,842

BASE SCENARIO

U.S.A.

REGION LOADINGS

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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1973 TREATMENT EFFORT

LOADINGS FOR 1974. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	155	23	178	1,544
NITROGEN	576	912	1,489	14,126
DISS SOLID	24,703	59,029	83,732	1,726,450
CHLORIDE	3,542	6,190	9,732	67,233
SILICA	247	6,673	6,920	150,015
SUSP SOLID	5,776	40,882	46,660	22,976,750
OIL	337	508	845	9,490
SULPHUR	7,040	4,370	11,410	95,613
NI3	567	184	750	1,763
PHENOL	0	23	23	107
CYANIDE	18	3	21	77
ALUMINUM	607	130	737	0
BORON	0	24	24	0
BROMINE	0	15	15	0
CADMIUM	2	3	4	14
CALCIUM	6,172	9,827	15,999	319,010
CHROMIUM	30	1	32	111
COPPER	48	3	50	570
FLUORIDE	76	22	98	2,413
IRON	1,012	172	1,184	33,069
LEAD	23	4	28	360
MAGNESIUM	1,822	2,587	4,407	181,551
MANGANESE	1,922	46	1,969	1,227
MERCURY	0	0	0	4
NICKEL	28	4	32	141
POTASSIUM	820	1,854	2,674	24,783
SODIUM	6,475	7,890	14,367	57,524
TITANIUM	0	132	132	0
ZINC	68	59	127	744
BOD	10,017	6,117	16,134	40,588

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974, IN METRIC TONNES.

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REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	74	6	81	298
NITROGEN	267	309	576	5,621
DISS SOLID	11,112	16,465	27,576	697,150
CHLORIDE	1,592	796	2,388	41,975
SILICA	114	2,450	2,564	58,400
SUSP SOLID	2,909	12,340	15,249	215,350
OIL	196	198	395	9,198
SULPHUR	3,166	912	4,079	85,045
NH3	255	55	310	554
PHENOL	0	12	12	48
CYANIDE	8	0	8	14
ALUMINIUM	273	66	338	0
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	2	19
CALCIUM	2,775	3,026	5,801	165
CHROMIUM	14	0	14	70
COPPER	22	1	23	71
FLUORIDE	34	2	36	1,756
IRON	468	27	496	7,410
LEAD	11	1	12	394
MAGNESIUM	819	1,076	1,895	34,456
MANGANESE	864	15	880	137
MERCURY	0	0	0	8
NICKEL	13	1	14	77
POTASSIUM	368	629	998	18,907
SODIUM	2,912	2,553	5,465	39,055
TITANIUM	0	68	68	0
ZINC	31	30	60	269
BOD	4,504	2,838	7,341	17,301

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	4	27	42 191 ✓
NITROGEN	77	121	197	2,125
DISS SOLID	3,042	8,860	11,902	378,735
CHLORIDE	437	395	832	22,211
SILICA	33	12	44	20,089
SUSP SOLID	979	3,346	4,325	28,395
OIL	83	212	295	5,337
SULPHUR	867	887	1,754	30,420
NH3	70	28	98	170
PHENOL	0	12	12	170
CYANIDE	2	0	3	0
ALUMINIUM	75	66	140	0
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	760	2,102	2,863	110,066
CHROMIUM	4	0	5	0
COPPER	5	0	6	6
FLUORIDE	9	2	12	449
IRON	135	30	165	609
LEAD	3	0	3	20
MAGNESIUM	224	169	394	33,177
MANGANESE	237	1	238	27
MERCURY	0	0	0	0
NICKEL	4	0	4	11
POTASSIUM	101	53	154	2,681
SODIUM	798	2,230	3,028	15,214
TITANIUM	0	68	68	0
ZINC	8	28	36	39
EOD	1,235	2,538	3,773	7,915

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
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REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	355	104	459	544 2207
NITROGEN	1,538	3,344	4,882	27,095
DISS SOLID	78,445	576,301	654,747	3,795,678
CHLORIDE	11,473	116,555	128,030	449,679
SILICA	652	793	1,451	76,467
SUSP SOLID	15,577	538,448	554,025	661,290
OIL	1,201	648	1,849	26,061
SULPHUR	22,447	35,519	57,966	448,730
NH3	1,906	960	2,867	2,138
PHENOL	1	7	8	83
CYANIDE	61	14	75	2
ALUMINIUM	2,043	129	2,172	0
BORON	0	1,714	1,714	0
BROMINE	0	1,045	1,045	0
CADMIUM	6	1	7	15
CALCIUM	20,767	96,623	117,390	605,029
CHROMIUM	125	1	126	6
COPPER	116	1	117	49
FLUORIDE	256	90	346	2,484
IRON	2,889	952	3,841	21,606
LEAD	59	7	67	68
MAGNESIUM	5,900	12,167	18,068	175,181
MANGANESE	6,468	18	6,486	308
MERCURY	0	0	0	2
NICKEL	92	4	95	70
POTASSIUM	2,758	3,133	5,890	25,124
SODIUM	21,788	33,187	54,975	196,774
TITANIUM	0	24	24	0
ZINC	192	32	223	170
BOD	33,703	4,415	38,119	41,088

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LOADINGS FOR 1980. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	156	26	182	1,547
NITROGEN	578	1,020	1,598	14,234
DISS SOLID	24,769	66,232	91,001	1,733,719
CHLORIDE	3,551	7,085	10,636	68,137
SILICA	248	7,059	7,306	150,401
SUSP SOLID	5,791	46,050	51,821	22,981,911
OIL	338	580	918	9,563
SULPHUR	7,059	4,907	11,966	96,169
NH3	568	200	768	1,781
PHENOL	0	27	27	111
CYANIDE	18	3	21	77
ALUMINUM	608	153	762	25
BORON	0	33	33	8
BROMINE	0	20	20	5
CADMIUM	2	3	5	14
CALCIUM	6,188	11,132	17,321	320,332
CHROMIUM	30	1	32	112
COPPER	48	3	51	570
FLUORIDE	77	23	99	2,414
IRON	1,014	185	1,200	33,085
LEAD	23	4	28	360
MAGNESIUM	1,826	2,800	4,626	181,769
MANGANESE	1,928	49	1,977	1,235
MERCURY	0	0	0	4
NICKEL	29	4	33	141
POTASSIUM	822	1,982	2,804	24,914
SODIUM	6,493	9,009	15,502	58,659
TITANIUM	0	156	156	24
ZINC	68	69	137	754
BOD	10,044	7,128	17,172	41,626

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REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	77	8	85	302
NITROGEN	276	380	656	5,701
DISS SOLID	11,481	18,597	30,078	699,651
CHLORIDE	1,645	902	2,547	42,133
SILICA	119	2,532	2,651	58,486
SUSP SOLID	3,005	13,949	16,955	217,056
OIL	203	247	449	9,253
SULPHUR	3,272	1,091	4,362	85,329
NHS	263	68	330	576
PHENOL	0	14	14	51
CYANIDE	8	0	9	14
ALUMINUM	282	83	365	27
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	2	0
CALCIUM	2,867	3,322	6,189	19
CHROMIUM	15	1	15	553
COPPER	23	1	23	71
FLUORIDE	35	3	38	72
IRON	484	33	517	1,757
LEAD	11	1	13	7,431
MAGNESIUM	846	1,148	1,994	394
MANGANESE	893	16	909	34,555
MERCURY	0	0	0	166
NICKEL	14	2	14	8
POTASSIUM	381	665	1,046	77
SODIUM	3,008	3,168	6,176	18,956
TITANIUM	0	86	86	39,766
ZINC	32	37	68	18
BOD	4,653	3,593	8,246	277
				18,205

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	24	5	30	40 195
NITROGEN	84	152	236	2,164
DISS SOLID	3,330	10,814	14,144	380,977
CHLORIDE	478	473	949	22,330
SILICA	36	14	50	20,095
SUSP SOLID	1,072	4,216	5,287	29,357
OIL	91	266	356	5,398
SULPHUR	949	1,097	2,047	30,713
NH3	77	36	113	185
PHENOL	0	14	14	173
CYANIDE	3	0	3	0
ALUMINUM	82	84	166	25
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	832	2,642	3,475	110,678
CHROMIUM	5	1	5	1
COPPER	6	0	6	7
FLUORIDE	10	3	13	450
IRON	148	37	185	629
LEAD	3	0	4	20
MAGNESIUM	246	203	448	33,231
MANGANESE	259	1	260	49
MERCURY	0	0	0	0
NICKEL	4	0	4	11
POTASSIUM	111	65	176	2,704
SODIUM	874	2,830	3,703	15,889
TITANIUM	0	86	86	18
ZINC	9	35	45	47
BOD	1,352	3,227	4,578	8,721

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REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	396	129	514	1,010 2,262
NITROGEN	1,674	4,055	5,729	27,942
DISS SOLID	85,361	730,704	816,065	3,956,997
CHLORIDE	12,485	148,190	160,676	482,325
SILICA	710	857	1,567	76,583
SUSP SOLID	16,951	689,877	706,827	814,092
OIL	1,307	730	2,037	26,249
SULPHUR	24,426	44,086	68,511	459,275
NH3	2,075	1,163	3,238	2,509
PHENOL	1	8	10	84
CYANIDE	67	14	81	9
ALUMINUM	2,223	167	2,390	218
BORON	0	2,214	2,214	500
BROMINE	0	1,350	1,350	305
CADMIUM	7	1	8	15
CALCIUM	22,598	123,270	145,868	633,507
CHROMIUM	136	1	137	17
COPPER	126	1	127	59
FLUORIDE	278	100	378	2,516
IRON	3,144	1,133	4,276	22,041
LEAD	65	8	74	74
MAGNESIUM	6,421	15,675	22,096	179,210
MANGANESE	7,039	19	7,058	878
MERCURY	0	0	1	2
NICKEL	100	4	104	78
POTASSIUM	3,001	3,853	6,853	26,087
SODIUM	23,709	41,132	64,840	206,640
TITANIUM	0	32	32	8
ZINC	209	37	246	193
GDG	36,675	5,260	41,935	44,904

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REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	157	30	186	1,552
NITROGEN	502	1,097	1,679	14,315
DISS SOLID	24,946	72,839	97,785	1,740,503
CHLORIDE	3,577	7,968	11,543	69,044
SILICA	249	7,373	7,622	150,717
SUSP SOLID	5,833	49,142	54,975	22,985,066
OIL	340	660	1,000	9,644
SULPHUR	7,109	5,570	12,680	96,883
NH3	572	213	786	1,798
PHENOL	0	31	32	115
CYANIDE	18	3	21	77
ALUMINUM	613	175	787	51
BORON	0	36	36	12
BROMINE	0	23	23	7
CADMIUM	2	4	5	14
CALCIUM	6,233	12,067	18,301	321,312
CHROMIUM	31	2	32	112
COPPER	49	4	51	571
FLUORIDE	77	26	103	2,417
IRON	1,021	208	1,229	33,115
LEAD	23	5	29	361
MAGNESIUM	1,840	2,939	4,779	181,922
MANGANESE	1,941	52	1,994	1,251
MERCURY	0	0	0	4
NICKEL	29	5	34	142
POTASSIUM	828	2,102	2,930	25,039
SODIUM	6,539	10,256	16,795	59,953
TITANIUM	0	178	178	46
ZINC	68	78	147	764
BOD	10,116	8,028	18,144	42,597

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REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	81	10	90	307
NITROGEN	291	428	719	5,764
DISS SOLID	12,092	20,169	32,261	701,835
CHLORIDE	1,733	969	2,702	42,288
SILICA	125	2,528	2,652	58,488
SUSP SOLID	3,165	14,982	18,148	218,249
OIL	214	293	508	9,311
SULPHUR	3,446	1,250	4,695	85,662
NH3	277	77	354	599
PHENOL	0	17	18	54
CYANIDE	9	0	9	14
ALUMINUM	297	101	398	59
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	2	19
CALCIUM	3,020	3,530	6,549	913
CHROMIUM	15	1	16	72
COPPER	23	2	25	73
FLUORIDE	37	3	40	1,760
IRON	509	40	549	7,463
LEAD	12	1	13	395
MAGNESIUM	891	1,183	2,074	34,635
MANGANESE	940	16	957	213
MERCURY	0	0	0	8
NICKEL	14	2	15	78
POTASSIUM	401	679	1,079	18,989
SODIUM	3,168	3,768	6,937	40,527
TITANIUM	0	104	104	37
ZINC	33	44	77	287
BUD	4,900	4,310	9,211	19,170

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	27	6	33	49 198
NITROGEN	92	179	271	2,199
DISS SOLID CHLORIDE	3,642	12,564	16,206	383,040
SILICA	523	541	1,063	22,443
SUSP SOLID	40	17	57	20,102
OIL	1,173	4,961	6,134	30,203
SULPHUR	100	313	412	5,454
NH3	1,039	1,283	2,321	30,987
PHENOL	84	41	125	197
CYANIDE	0	17	17	176
ALUMINUM	3	0	3	1
BORON	90	99	189	49
BROMINE	0	0	0	0
CAESIUM	0	0	0	0
CALCIUM	0	0	0	3
CHROMIUM	911	3,119	4,030	111,234
COPPER	5	1	6	1
FLUORIDE	7	0	7	8
IRON	11	3	14	452
LEAD	162	43	205	650
MAGNESIUM	4	0	4	20
MANGANESE	269	230	499	33,281
MERCURY	284	1	284	75
NICKEL	0	0	0	0
POTASSIUM	4	1	4	12
SODIUM	121	76	197	2,724
TITANIUM	956	3,351	4,306	16,493
ZINC	0	103	103	34
BOD	10	42	52	55
	1,479	3,829	5,306	9,449

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

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REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	418	154	571	4,076 2,320
NITROGEN	1,813	4,765	6,578	28,791
DISS SOLID CHLORIDE	92,416	884,877	977,292	4,118,224
SILICA	13,517	179,720	193,237	514,886
SUSP SOLID OIL	769	1,006	1,775	76,791
SULPHUR	18,351	835,137	853,487	960,753
NH3	1,415	849	2,264	26,476
PHENOL	26,445	53,110	79,555	470,318
CYANIDE	2,246	1,359	3,605	2,876
ALUMINIUM	1	10	11	86
BORON	72	16	88	15
BROMINE	2,407	202	2,608	437
CADMIUM	0	2,693	2,693	979
CALCIUM	0	1,642	1,642	597
CHROMIUM	8	1	9	16
COPPER	24,465	148,874	173,339	660,979
FLUORIDE	147	1	149	29
IRON	136	1	138	70
LEAD	301	114	416	2,554
MAGNESIUM	3,403	1,333	4,736	22,501
MANGANESE	70	10	80	81
MERCURY	6,952	19,040	25,992	183,106
NICKEL	7,620	23	7,643	1,463
POTASSIUM	0	0	1	2
SODIUM	108	4	113	87
TITANIUM	3,249	4,625	7,874	27,107
ZINC	25,668	49,640	75,309	217,108
BOD	0	38	38	14
	226	42	268	215
	39,705	6,075	45,781	48,749

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REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	165	32	197	1,562
NITROGEN	611	1,182	1,793	14,431
DISS SOLID	26,206	80,681	106,889	1,749,605
CHLORIDE	3,757	9,032	12,788	70,289
SILICA	262	7,750	8,012	151,106
SUSP SOLID	6,128	52,582	58,710	22,988,801
OIL	357	754	1,112	9,756
SULPHUR	7,468	6,385	13,853	98,056
NH3	601	230	830	1,843
PHENOL	0	35	35	119
CYANIDE	19	3	22	78
ALUMINUM	644	200	844	107
BORON	0	40	40	14
BROMINE	0	24	24	9
CADMIUM	2	4	5	14
CALCIUM	6,547	13,118	19,667	322,678
CHROMIUM	32	2	33	113
COPPER	50	4	54	572
FLUORIDE	80	31	111	2,426
IRON	1,073	237	1,310	33,196
LEAD	25	5	31	363
MAGNESIUM	1,932	3,100	5,032	182,175
MANGANESE	2,039	56	2,095	1,353
MERCURY	0	0	0	4
NICKEL	30	6	36	144
POTASSIUM	869	2,246	3,116	25,225
SODIUM	6,870	11,752	18,622	61,780
TITANIUM	0	203	203	71
ZINC	72	89	161	778
BOD	10,627	9,059	19,687	44,140

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REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	89	11	100	317
NITROGEN	322	479	801	5,845
DISS SOLID	13,390	21,989	35,379	704,953
CHLORIDE	1,919	1,041	2,960	42,547
SILICA	138	2,531	2,669	58,504
SUSP SOLID	3,506	16,145	19,651	219,751
OIL	237	351	588	9,391
SULPHUR	3,816	1,437	5,253	86,220
NH3	307	86	393	639
PHENOL	0	22	22	58
CYANIDE	10	0	10	15
ALUMINUM	329	122	451	113
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	2	19
CALCIUM	3,344	3,782	7,126	1,489
CHROMIUM	17	1	18	74
COPPER	26	2	28	76
FLUORIDE	41	4	44	1,764
IRON	564	46	611	7,525
LEAD	13	2	14	397
MAGNESIUM	986	1,223	2,210	34,771
MANGANESE	1,041	16	1,058	315
MERCURY	0	0	0	8
NICKEL	15	2	17	80
POTASSIUM	444	695	1,139	19,048
SODIUM	3,508	4,495	8,003	41,593
TITANIUM	0	126	126	58
ZINC	37	53	90	300
BOD	5,427	5,165	10,592	20,552

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LOADINGS FOR 1990. IN METRIC TONNES.

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	32	7	40	58 204
NITROGEN	110	209	320	2,247
DISS SOLID CHLORIDE	4,352	14,551	18,905	385,737
SILICA	625	617	1,242	22,622
SUSP SOLID	47	21	68	20,112
OIL	1,401	5,797	7,198	31,268
SULPHUR	119	366	485	5,527
NH3	1,241	1,493	2,734	31,400
PHENOL	100	49	149	221
CYANIDE	0	20	20	179
ALUMINUM	4	0	4	1
BORON	107	117	224	83
BROMINE	0	0	0	0
CADMIUM	0	0	0	0
CALCIUM	0	0	0	3
CHROMIUM	1,088	3,668	4,756	111,959
COPPER	6	1	7	3
FLUORIDE	8	0	9	9
IRON	14	4	17	454
LEAD	194	50	244	688
MAGNESIUM	4	0	4	21
MANGANESE	321	260	581	33,364
MERCURY	339	1	340	130
NICKEL	0	0	0	0
POTASSIUM	5	1	5	13
SODIUM	145	88	232	2,760
TITANIUM	1,142	3,940	5,082	17,268
ZINC	0	121	121	52
BOD	12	49	61	64
	1,767	4,507	6,274	10,417

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	473	185	656	1,160 2,404
NITROGEN	2,049	5,599	7,647	29,860
DISS SOLID	104,484	1,068,999	1,173,473	4,314,404
CHLORIDE	15,282	217,375	232,657	554,307
SILICA	869	1,202	2,072	77,088
SUSP SOLID	20,748	1,007,015	1,027,762	1,135,028
OIL	1,599	996	2,596	26,808
SULPHUR	29,898	63,972	93,869	484,633
NH3	2,539	1,583	4,123	3,394
PHENOL	2	12	13	87
CYANIDE	82	10	99	27
ALUMINUM	2,721	243	2,963	792
BORON	0	3,261	3,262	1,547
BROMINE	0	1,988	1,988	943
CADMIUM	9	1	10	17
CALCIUM	27,660	179,239	206,899	694,538
CHROMIUM	167	2	167	49
COPPER	154	2	156	87
FLUORIDE	340	133	473	2,612
IRON	3,848	1,571	5,418	23,183
LEAD	79	13	92	92
MAGNESIUM	7,860	23,033	30,892	188,006
MANGANESE	8,616	27	8,643	2,463
MERCURY	1	0	1	2
NICKEL	122	5	128	103
POTASSIUM	3,673	5,555	9,228	28,461
SODIUM	29,021	59,912	88,933	230,731
TITANIUM	0	44	44	20
ZINC	256	48	303	250
BOD	44,891	7,007	51,898	54,867

UPPER LAKES REFERENCE GROUP
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1973 TREATMENT EFFORT

LOADINGS FOR 2000. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	167	41	208	1,573
NITROGEN	619	1,416	2,035	14,672
DISS SOLID	26,548	101,102	127,650	1,770,368
CHLORIDE	3,806	11,764	15,570	73,071
SILICA	266	8,813	9,077	152,172
SUSP SOLID	6,208	63,074	69,281	22,999,372
OIL	362	982	1,344	9,989
SULPHUR	7,566	8,334	15,900	100,103
NH3	609	272	880	1,894
PHENOL	0	46	47	131
CYANIDE	20	3	23	78
ALUMINIUM	652	262	914	177
BORON	0	52	52	28
BROMINE	0	32	32	17
CADMIUM	2	4	6	14
CALCIUM	6,633	16,044	22,677	325,688
CHROMIUM	32	2	34	114
COPPER	51	4	56	574
FLUORIDE	82	40	122	2,436
IRON	1,087	303	1,391	33,276
LEAD	25	7	32	364
MAGNESIUM	1,958	3,579	5,537	182,680
MANGANESE	2,066	66	2,131	1,389
MERCURY	0	0	0	4
NICKEL	31	7	38	146
POTASSIUM	881	2,629	3,510	25,619
SODIUM	6,960	15,374	22,334	65,491
TITANIUM	0	267	267	135
ZINC	73	116	188	805
BOD	10,766	11,658	22,423	46,876

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	96	14	112	329
NITROGEN	349	615	964	6,008
DISS SOLID	14,492	27,204	41,696	711,270
CHLORIDE	2,076	1,246	3,322	42,908
SILICA	149	2,696	2,846	58,681
SUSP SOLID	3,794	19,674	23,468	223,569
OIL	257	500	756	9,560
SULPHUR	4,129	1,935	6,064	87,031
NH3	332	113	446	690
PHENOL	0	31	32	68
CYANIDE	11	0	11	16
ALUMINUM	356	179	535	196
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	3	20
CALCIUM	3,619	4,578	8,197	2,561
CHROMIUM	19	1	20	76
COPPER	28	2	30	78
FLUORIDE	44	4	49	1,769
IRON	611	65	676	7,590
LEAD	14	2	15	398
MAGNESIUM	1,068	1,380	2,447	35,008
MANGANESE	1,127	18	1,145	402
MERCURY	0	0	0	8
NICKEL	16	2	19	82
POTASSIUM	481	772	1,253	19,163
SODIUM	3,797	6,414	10,211	43,802
TITANIUM	0	185	185	117
ZINC	40	77	117	326
BOD	5,873	7,418	13,291	23,251

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	37	10	47	42 211
NITROGEN	125	204	410	2,338
DISS SOLID	4,968	19,403	24,451	391,285
CHLORIDE	713	807	1,520	22,900
SILICA	54	28	82	20,127
SUSP SOLID	1,599	7,872	9,472	33,540
OIL	136	500	635	5,676
SULPHUR	1,416	2,019	3,434	32,100
NH3	114	66	180	252
PHENOL	0	28	28	186
CYANIDE	4	0	4	2
ALUMINUM	122	160	283	142
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	1,242	5,062	6,304	113,508
CHROMIUM	7	1	9	4
COPPER	10	0	10	11
FLUORIDE	15	4	20	457
IRON	221	68	289	733
LEAD	4	1	5	22
MAGNESIUM	366	332	698	33,481
MANGANESE	387	2	389	178
MERCURY	0	0	0	0
NICKEL	5	1	6	14
POTASSIUM	165	118	283	2,811
SODIUM	1,303	5,407	6,710	18,896
TITANIUM	0	166	166	98
ZINC	14	68	81	84
BOD	2,016	6,199	8,215	12,359

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000, IN METRIC TONNES.

DATE 03/11/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	534	260	794	4,298 2,542
NITROGEN	2,315	7,645	9,960	32,173
DISS SOLID CHLORIDE	110,038	1,537,469	1,655,507	4,796,437
SILICA	17,264	313,303	330,566	652,216
SUSP SOLID	982	1,640	2,622	77,638
OIL	23,439	1,446,881	1,470,320	1,577,586
SULPHUR	1,807	1,335	3,141	27,354
NH3	33,776	91,231	125,007	515,771
PHENOL	2,868	2,130	4,999	4,270
CYANIDE	2	15	17	92
ALUMINUM	92	21	113	40
BORON	3,074	347	3,421	1,249
BROMINE	0	4,722	4,722	3,009
CADMIUM	0	2,879	2,879	1,834
CALCIUM	10	2	12	19
CHROMIUM	31,248	257,115	288,363	776,002
COPPER	188	2	190	70
FLUORIDE	174	2	176	108
IRON	384	174	558	2,697
LEAD	4,346	2,144	6,490	24,255
MAGNESIUM	90	17	107	107
MANGANESE	8,879	33,290	42,169	199,283
MERCURY	9,733	37	9,770	3,591
NICKEL	1	0	1	2
POTASSIUM	138	8	146	121
SODIUM	4,149	7,870	12,020	31,253
TITANIUM	32,785	85,619	118,404	260,204
ZINC	0	60	60	35
BOD	289	60	349	296
	50,714	9,234	59,948	62,917

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LOADINGS FOR 2010. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	163	52	215	1,580
NITROGEN	607	1,724	2,330	14,967
DISS SOLID	25,996	126,544	152,540	1,795,258
CHLORIDE	3,727	15,105	18,831	76,332
SILICA	260	10,214	10,474	153,569
SUSP SOLID	6,079	77,736	83,814	23,013,905
OIL	355	1,253	1,607	10,252
SULPHUR	7,409	10,600	18,008	102,211
NH3	597	327	922	1,936
PHENOL	0	59	60	143
CYANIDE	19	4	23	78
ALUMINUM	639	338	977	240
BORON	0	72	72	47
BROMINE	0	44	44	29
CADMIUM	2	4	6	15
CALCIUM	6,495	19,939	26,434	329,445
CHROMIUM	32	3	34	114
COPPER	50	4	55	573
FLUORIDE	80	49	129	2,444
IRON	1,065	377	1,442	33,328
LEAD	24	9	33	365
MAGNESIUM	1,917	4,241	6,158	183,301
MANGANESE	2,023	77	2,100	1,358
MERCURY	0	0	0	4
NICKEL	30	9	39	147
POTASSIUM	862	3,114	3,976	26,087
SODIUM	6,815	19,650	26,465	69,622
TITANIUM	0	345	345	212
ZINC	71	149	220	837
BCD	10,542	14,875	25,417	49,870

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

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REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	99	20	119	336
NITROGEN	357	802	1,159	6,204
DISS SOLID	14,858	34,396	49,254	718,827
CHLORIDE	2,129	1,521	3,650	43,237
SILICA	153	3,049	3,202	59,038
SUSP SOLID	3,889	24,782	28,671	228,773
OIL	263	697	960	9,763
SULPHUR	4,234	2,591	6,826	87,791
NH3	340	149	490	735
PHENOL	0	44	44	80
CYANIDE	11	0	12	17
ALUMINUM	365	254	618	281
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	3	20
CALCIUM	3,711	5,742	9,453	3,816
CHROMIUM	19	2	21	77
COPPER	29	2	31	79
FLUORIDE	46	5	51	1,770
IRON	626	90	716	7,630
LEAD	14	2	16	399
MAGNESIUM	1,095	1,622	2,717	35,278
MANGANESE	1,156	21	1,176	433
MERCURY	0	0	0	8
NICKEL	17	3	20	83
POTASSIUM	492	905	1,399	19,308
SODIUM	3,893	8,968	12,861	46,451
TITANIUM	0	262	262	194
ZINC	40	109	149	358
BOD	6,022	10,410	16,432	26,392

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	38	14	51	217
NITROGEN	130	379	509	2,436
DISS SOLID	5,130	25,631	30,761	397,595
CHLORIDE	736	1,043	1,779	23,159
SILICA	56	38	94	20,138
SUSP SOLID	1,652	10,455	12,107	36,176
OIL	140	666	805	5,847
SULPHUR	1,463	2,675	4,137	32,803
NH3	118	87	205	277
PHENOL	0	37	37	196
CYANIDE	4	0	4	2
ALUMINUM	126	215	341	201
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	1,283	6,836	8,119	115,322
CHROMIUM	8	1	9	4
COPPER	10	1	11	11
FLUORIDE	16	6	22	459
IRON	228	91	319	763
LEAD	4	1	5	23
MAGNESIUM	379	420	798	33,581
MANGANESE	400	2	401	192
MERCURY	0	0	0	0
NICKEL	6	1	7	14
POTASSIUM	170	155	325	2,852
SODIUM	1,346	7,234	8,581	20,767
TITANIUM	0	222	222	154
ZINC	14	90	104	107
BOD	2,082	8,309	10,391	14,533

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010, IN METRIC TONNES.

DATE 03/11/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	567	354	921	1,425 2,669
NITROGEN	2,459	10,155	12,614	34,826
DISS SOLID	125,392	2,128,397	2,253,789	5,394,720
CHLORIDE	18,340	434,451	452,791	774,440
SILICA	1,043	2,100	3,143	78,159
SUSP SOLID	24,899	2,006,208	2,031,188	2,138,453
OIL	1,920	1,713	3,632	27,845
SULPHUR	35,880	125,093	160,973	551,737
NH3	3,047	2,801	5,848	5,120
PHENOL	2	20	22	96
CYANIDE	98	24	122	49
ALUMINIUM	3,265	481	3,746	1,574
BORON	0	6,587	6,588	4,873
BROMINE	0	4,016	4,016	2,971
CADMIUM	11	2	13	20
CALCIUM	33,195	356,075	389,270	876,909
CHROMIUM	200	3	203	83
COPPER	185	3	187	120
FLUORIDE	408	218	626	2,765
IRON	4,617	2,829	7,447	25,212
LEAD	95	23	118	119
MAGNESIUM	9,432	46,372	55,804	212,918
MANGANESE	10,339	47	10,387	4,207
MERCURY	1	0	1	2
NICKEL	147	10	157	131
POTASSIUM	4,408	10,724	15,133	34,366
SODIUM	34,827	117,448	152,276	294,074
TITANIUM	0	80	80	56
ZINC	307	75	382	329
BOD	53,874	11,894	65,768	68,736

UPPER LAKES REFERENCE GROUP
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1973 TREATMENT EFFORT

LOADINGS FOR 2020. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	168	63	231	1,597
NITROGEN	625	1,993	2,616	15,253
DISS SOLID	26,762	151,275	178,036	1,820,754
CHLORIDE	3,837	18,394	22,230	79,731
SILICA	267	11,408	11,755	154,850
SUSP SOLID	6,258	88,764	95,022	23,025,113
OIL	365	1,555	1,921	10,565
SULPHUR	7,627	13,179	20,805	105,008
NH3	614	382	995	2,008
PHENOL	0	74	74	158
CYANIDE	20	4	24	80
ALUMINUM	650	418	1,076	338
BORON	0	81	81	57
BROMINE	0	49	49	34
CADMIUM	2	5	7	16
CALCIUM	6,687	23,365	30,051	333,062
CHROMIUM	32	4	36	116
COPPER	52	5	57	576
FLUORIDE	82	63	145	2,461
IRON	1,096	473	1,570	33,456
LEAD	25	11	36	367
MAGNESIUM	1,973	4,767	6,740	183,884
MANGANESE	2,083	89	2,172	1,429
MERCURY	0	0	0	4
NICKEL	31	11	41	149
POTASSIUM	888	3,588	4,477	26,586
SODIUM	7,015	24,387	31,403	74,560
TITANIUM	0	426	426	293
ZINC	73	183	256	873
UO2	10,852	18,154	29,006	53,460

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION,
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	108	25	133	350
NITROGEN	390	980	1,371	6,415
DISS SOLID CHLORIDE	16,196	41,289	57,485	727,059
SILICA	2,320	1,743	4,064	43,650
SUSP SOLID	167	3,198	3,365	59,200
OIL	4,239	29,498	33,737	233,839
SULPHUR	286	928	1,214	10,017
NH3	4,615	3,310	7,924	88,891
PHENOL	372	186	557	803
CYANIDE	0	59	59	95
ALUMINUM	12	1	13	18
BORON	398	343	741	402
BROMINE	0	0	0	0
CADMIUM	0	0	0	0
CALCIUM	1	1	3	20
CHROMIUM	4,045	6,855	10,900	5,263
COPPER	21	2	23	78
FLUORIDE	32	2	34	82
IRON	49	6	57	1,776
LEAD	683	119	802	7,716
MAGNESIUM	15	3	18	401
MANGANESE	1,193	1,787	2,981	35,542
MERCURY	1,260	23	1,282	539
NICKEL	0	0	0	8
POTASSIUM	19	3	22	85
SODIUM	537	994	1,531	19,441
TITANIUM	4,243	11,960	16,203	49,793
ZINC	0	354	354	286
BOD	44	146	190	400
	6,564	13,905	20,469	30,428

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	42	17	59	76 225
NITROGEN	145	478	623	2,551
DISS SOLID	5,751	32,279	38,030	404,864
CHLORIDE	825	1,299	2,124	23,504
SILICA	62	48	111	20,155
SUSP SOLID	1,852	13,162	15,014	39,082
OIL	157	842	999	6,041
SULPHUR	1,640	3,378	5,017	33,682
NH3	132	109	241	313
PHENOL	0	47	47	206
CYANIDE	4	1	4	3
ALUMINUM	141	273	414	274
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	0	1	3
CALCIUM	1,438	8,732	10,170	117,374
CHROMIUM	9	2	11	5
COPPER	11	1	12	13
FLUORIDE	18	7	25	462
IRON	256	114	369	814
LEAD	5	1	6	23
MAGNESIUM	425	512	937	33,719
MANGANESE	448	3	450	240
MERCURY	0	0	0	0
NICKEL	6	1	8	15
POTASSIUM	191	193	384	2,912
SODIUM	1,509	9,157	10,666	22,852
TITANIUM	0	281	281	213
ZINC	15	114	130	132
BOD	2,335	10,528	12,863	17,006

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	628	460	1,088	1,593 2,836
NITROGEN	2,726	12,963	15,689	37,902
DISS SOLID	139,012	2,788,219	2,927,230	6,068,162
CHLORIDE	20,332	569,703	590,035	911,685
SILICA	1,157	2,721	3,876	78,893
SUSP SOLID	27,604	2,624,945	2,652,548	2,759,814
OIL	2,129	2,183	4,311	28,524
SULPHUR	39,778	163,463	203,241	594,004
NH3	3,379	3,556	6,934	6,206
PHENOL	2	25	27	101
CYANIDE	109	28	137	64
ALUMINIUM	3,620	625	4,245	2,074
BORON	0	8,647	8,647	6,934
BROMINE	0	5,271	5,271	4,226
CADMIUM	12	3	14	22
CALCIUM	36,801	464,817	501,618	989,257
CHROMIUM	221	4	225	105
COPPER	205	3	208	140
FLUORIDE	453	275	727	2,867
IRON	5,119	3,632	8,751	26,516
LEAD	105	30	135	136
MAGNESIUM	10,456	60,818	71,275	228,389
MANGANESE	11,462	61	11,524	5,345
MERCURY	1	0	1	2
NICKEL	163	14	176	150
POTASSIUM	4,887	13,982	18,869	38,102
SODIUM	38,610	153,695	192,306	334,104
TITANIUM	0	100	100	76
ZINC	340	92	432	379
BOD	59,726	14,816	74,541	77,510

SYNERGISTIC SCENARIO

CANADA

LOADING SUMMARY

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 1974. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	172	114	285	1,157	169	279	449	3,083
NITROGEN	1,123	2,388	3,510	97,911	1,436	10,412	11,848	20,913
DISS SOLID	19,628	440,561	460,388	3,012,698	24,949	717,772	742,720	3,604,189
CHLORIDE	2,705	2,784	5,489	233,666	3,487	75,352	78,838	227,591
SILICA	411	2,379	2,790	153,461	453	27,478	27,930	89,975
SUSP SOLID	3,263	29,286	32,549	307,265	4,549	55,407	59,955	211,113
OIL	144	177,183	177,327	0	526	184,631	185,158	0
SULPHUR	2,254	6,411	8,664	310,542	2,849	65,388	68,237	609,923
NH3	767	34,075	34,842	6,650	1,627	21,405	23,033	1,246
PHENOL	1	189	190	364	2	201	203	121
CYANIDE	16	19	35	990	34	31	65	263
ALUMINUM	541	881	1,222	26,145	1,149	266	1,415	3,569
BORON	0	23	23	0	0	1,061	1,061	0
BROMINE	0	14	14	0	0	646	646	0
CALCIUM	0	1	1	273	0	14	14	541
CALCIUM	2,255	12,454	14,710	179,069	4,787	95,373	100,160	3,223,463
CHROMIUM	1	13	14	848	1	99	101	322
COPPER	5	16	22	345,088	5	14	19	2,076
FLUORIDE	88	61	129	2,537	144	377	521	5,406
IRON	83	1,346	1,428	12,500	98	3,034	3,133	10,272
LEAD	4	3	7	1,382	4	30	34	2,263
MAGNESIUM	677	1,557	2,233	132,139	871	16,736	17,609	162,988
MANGANESE	6	21	27	5,760	14	264	277	1,288
MERCURY	0	0	0	4	0	1	1	2
NICKEL	1	58	58	1,493	1	95	96	3,374
POTASSIUM	370	1,267	1,636	75,574	785	12,180	12,965	32,922
SODIUM	1,894	24,594	26,287	146,840	4,021	75,789	79,810	199,102
TITANIUM	0	703	703	0	0	208	208	0
ZINC	9	59	68	498	10	89	99	2,150
BOB	5,863	99,001	104,864	171,469	12,446	40,567	53,013	62,000

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 1980. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	126	122	248	1,120	179	296	475	3,109
NITROGEN	1,026	2,513	3,539	97,940	1,617	10,565	12,182	21,247
DISS SOLID	22,078	480,002	502,079	3,054,389	27,709	789,784	817,493	3,678,962
CHLORIDE	3,082	2,976	6,057	234,234	3,878	82,763	86,641	235,395
SILICA	367	2,612	2,979	153,650	491	30,246	30,738	92,783
SUSP SOLID	2,682	31,566	34,248	308,964	4,848	57,474	62,322	213,479
OIL	158	200,233	200,390	23,063	566	208,644	209,210	24,052
SULPHUR	2,521	6,957	9,478	311,357	3,165	72,093	75,258	616,944
PHENOL	949	37,002	37,951	9,760	1,971	23,282	25,254	3,467
CYANIDE	1	213	214	388	3	226	229	147
ALUMINUM	20	22	42	996	41	34	76	275
BORON	670	740	1,409	26,332	1,391	291	1,682	3,836
BROMINE	0	26	26	3	0	1,175	1,175	113
CAESIUM	0	15	15	2	0	715	715	69
CADMIUM	0	1	1	273	0	16	16	543
CALCIUM	2,793	13,492	16,285	180,644	5,798	104,121	109,919	3,233,221
CHROMIUM	1	14	14	849	1	108	110	331
COPPER	4	17	22	345,088	5	15	21	2,078
FLUORIDE	84	69	153	2,561	174	419	593	5,478
IRON	80	1,511	1,591	12,663	108	3,388	3,495	10,634
LEAD	4	3	6	1,381	4	33	38	2,266
MAGNESIUM	770	1,701	2,471	132,377	969	18,412	19,382	164,762
MANGANESE	8	23	31	5,764	16	292	308	1,319
MERCURY	0	0	0	4	0	1	1	2
NICKEL	1	64	66	1,500	1	106	107	3,386
POTASSIUM	458	1,381	1,839	75,776	950	13,329	14,280	34,237
SODIUM	2,345	26,508	28,854	149,405	4,870	83,704	88,574	207,865
TITANIUM	0	763	763	60	0	226	226	18
ZINC	9	66	74	503	11	98	110	2,160
BOD	7,261	107,457	114,719	181,324	15,074	43,508	58,582	67,569

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 1985, IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	122	138	259	1,130	164	318	482	3,115
NITROGEN	1,010	2,747	3,757	98,157	1,563	11,122	12,685	21,750
DISS SOLID CHLORIDE	21,992	540,598	562,590	3,114,900	27,398	861,725	889,123	3,750,592
SILICA	3,072	3,236	6,307	234,484	3,843	89,203	93,046	241,799
SUSP SOLID OIL	361	2,096	3,258	153,928	469	33,421	33,890	95,936
SULPHUR	2,559	35,273	37,831	312,548	4,442	61,275	65,717	216,874
NITR	140	219,091	220,030	42,702	511	229,027	229,538	44,379
PHENOL	2,511	7,778	10,289	312,168	3,131	77,891	81,023	622,709
CYANIDE	949	41,063	42,811	14,621	1,985	25,998	27,984	6,196
ALUMINUM	1	234	236	410	3	248	251	168
BORON	20	24	44	998	42	37	79	277
BROMINE	670	838	1,507	26,429	1,401	326	1,727	3,881
CADMIUM	0	28	28	4	0	1,274	1,274	213
CALCIUM	0	17	17	3	0	777	777	130
CHROMIUM	0	1	2	273	0	17	18	544
COPPER	2,789	14,991	17,780	182,138	5,839	113,161	119,001	3,242,304
FLUORIDE	1	15	16	850	1	117	118	340
IRON	4	18	23	345,089	5	16	22	2,079
LEAD	84	76	159	2,568	176	454	628	5,513
MAGNESIUM	79	1,067	1,746	12,817	104	3,686	3,789	10,929
MANGANESE	4	3	7	1,382	4	36	40	2,269
NICKEL	768	1,091	2,659	132,566	961	20,193	21,154	166,533
POTASSIUM	8	25	32	5,766	16	320	336	1,346
SODIUM	0	0	0	4	0	1	1	2
TITANIUM	1	70	71	1,506	1	116	117	3,396
ZINC	457	1,528	1,985	75,922	958	14,541	15,499	35,455
BOU	2,343	29,935	32,278	152,829	4,905	90,887	95,792	215,083
	0	865	865	161	0	257	257	48
	9	72	81	509	11	107	118	2,168
	7,250	121,571	128,822	195,428	15,183	48,379	63,562	72,549

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 1990. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	65	136	201	1,071	148	328	475	3,109
NITROGEN	759	2,756	3,515	97,916	1,503	11,408	12,911	21,977
DISS SOLID	19,521	533,887	553,407	3,105,717	27,002	880,834	907,836	3,769,304
CHLORIDE	2,772	3,299	6,071	234,248	3,796	93,233	97,029	245,782
SILICA	260	2,498	3,258	153,928	445	34,753	35,199	97,244
SUSP SOLID	1,643	34,964	36,607	311,324	4,016	62,620	66,636	217,793
OIL	125	224,499	224,624	47,297	454	233,959	234,413	49,255
SULPHUR	2,237	7,751	9,987	311,866	3,087	82,069	85,157	626,843
NH3	944	41,193	42,137	13,946	1,994	26,301	28,295	6,508
PHENOL	1	239	239	413	3	254	257	175
CYANIDE	20	24	44	998	42	39	81	279
ALUMINIUM	666	823	1,489	26,411	1,408	328	1,735	3,889
BORON	0	31	31	7	0	1,387	1,387	326
BROMINE	0	19	19	4	0	845	845	199
CAESIUM	0	1	2	273	0	18	19	544
CALCIUM	2,777	15,074	17,851	182,210	5,865	119,126	124,991	3,248,294
CHROMIUM	1	15	16	850	1	119	120	341
COPPER	3	18	21	345,087	4	16	22	2,079
FLUORIDE	84	77	160	2,569	176	473	648	5,533
IRON	62	1,693	1,755	12,827	100	3,831	3,931	11,071
LEAD	3	3	5	1,380	4	38	42	2,271
MAGNESIUM	693	1,934	2,627	132,534	949	21,354	22,303	167,683
MANGANESE	8	25	33	5,766	16	333	349	1,360
MERCURY	0	0	0	4	0	1	1	2
NICKEL	1	72	73	1,508	1	120	121	3,399
POTASSIUM	455	1,557	2,012	75,949	962	15,198	16,160	36,116
SODIUM	2,332	29,526	31,858	152,410	4,927	95,370	100,297	219,588
TITANIUM	0	849	849	146	0	251	251	43
ZINC	7	72	79	508	11	110	121	2,171
BOJ	7,219	119,494	126,713	193,318	15,249	48,139	63,388	72,375

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 2000. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	36	131	167	1,037	94	333	428	3,061
NITROGEN	550	2,701	3,251	97,652	1,166	428	21,659	3,061
DISS SOLID	13,240	514,206	527,447	3,079,757	20,552	889,026	909,580	3,771,048
CHLORIDE	1,886	3,326	5,212	233,389	2,900	96,706	99,606	248,359
SILICA	168	3,229	3,398	154,068	318	37,445	37,762	99,808
SUSP SOLID	988	33,020	34,808	309,524	2,585	62,702	65,286	216,444
OIL	82	233,063	233,745	56,417	286	243,632	243,918	58,760
SULPHUR	1,518	7,355	9,073	310,951	2,352	86,009	88,361	630,048
NH3	824	39,435	40,259	12,068	1,772	26,856	28,628	6,841
PHENOL	1	247	248	422	2	265	266	185
CYANIDE	17	25	43	997	38	40	77	275
ALUMINUM	581	783	1,365	26,288	1,251	324	1,575	3,729
BORON	0	33	33	10	0	1,516	1,516	455
BROMINE	0	21	21	6	0	923	923	277
CALCIUM	0	1	2	273	0	20	20	545
CALCIUM	2,424	15,062	17,485	181,844	5,212	127,120	132,332	3,255,635
CHROMIUM	1	15	15	850	1	122	123	345
COPPER	2	18	20	345,086	4	17	20	2,078
FLUORIDE	73	80	152	2,561	157	491	647	5,532
IRON	41	1,741	1,782	12,853	73	3,997	4,070	11,209
LEAD	2	3	4	1,379	4	40	42	2,271
MAGNESIUM	472	2,006	2,478	132,384	725	23,082	23,808	169,187
MANGANESE	7	27	33	5,766	14	355	369	1,1379
MERCURY	0	0	0	4	0	1	1	2
NICKEL	1	74	75	1,509	1	125	126	3,404
POTASSIUM	398	1,604	2,002	75,938	855	16,121	16,975	36,931
SODIUM	2,036	28,344	30,380	150,932	4,378	99,561	103,939	223,231
TITANIUM	0	808	808	105	0	239	239	32
ZINC	4	71	76	505	8	113	121	2,172
UOL	6,302	114,032	120,334	186,939	13,552	46,705	60,256	69,243

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 2010. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	19	127	146	1,016	46	336	382	3,015
NITROGEN	391	2,052	3,043	97,443	825	11,256	12,082	21,147
DISS SOLID	7,792	502,359	510,152	3,062,462	12,213	892,308	904,521	3,765,819
CHLORIDE	1,111	3,354	4,465	232,642	1,727	99,293	101,021	249,773
SILICA	98	3,335	3,634	154,304	182	40,819	41,001	103,046
SUSP SOLID	533	33,110	33,644	308,359	1,308	62,192	63,499	214,657
OIL	47	248,431	248,477	71,150	150	259,050	259,200	74,042
SULPHUR	894	7,453	8,347	310,225	1,398	89,258	90,656	632,343
NHS	700	38,357	39,057	10,866	1,534	27,915	29,449	7,662
PHENOL	1	261	262	436	2	280	282	200
CYANIDE	14	27	41	996	32	42	75	273
ALUMINUM	494	758	1,252	26,175	1,083	323	1,406	3,560
BORON	0	36	36	13	0	1,630	1,630	569
BROMINE	0	22	22	7	0	994	994	347
CADMIUM	0	2	2	273	0	21	22	547
CALCIUM	2,059	15,329	17,389	181,748	4,512	136,388	140,899	3,264,202
CHROMIUM	0	15	16	850	1	131	132	354
COPPER	1	18	19	345,085	2	17	19	2,077
FLUORIDE	62	84	146	2,554	135	507	642	5,527
IRON	24	1,627	1,851	12,922	42	4,177	4,219	11,359
LEAD	1	3	4	1,378	2	40	42	2,271
MAGNESIUM	277	2,109	2,387	132,293	432	24,971	25,403	170,782
MANGANESE	5	29	34	5,767	13	378	391	1,401
MERCURY	0	0	0	4	0	1	2	2
NICKEL	0	78	78	1,513	1	132	132	3,411
POTASSIUM	338	1,676	2,014	75,951	740	17,118	17,858	37,814
SODIUM	1,730	27,016	29,345	149,897	3,790	103,084	106,873	226,165
TITANIUM	0	781	781	78	0	231	231	23
ZINC	3	72	75	504	4	117	122	2,172
BOU	5,354	110,498	115,852	182,458	11,730	45,692	57,422	66,409

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY. SYNERGISTIC SCENARIO

LOADINGS FOR 2020. IN METRIC TONNES.

PARAMETER	LAKE SUPERIOR				LAKE HURON			
	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	5	126	131	1,003	11	339	351	2,984
NITROGEN	227	2,047	2,074	97,275	482	11,127	11,610	20,676
DISS SOLID	2,985	502,548	505,534	3,057,844	4,971	900,688	905,659	3,767,128
CHLORIDE	425	3,425	3,849	232,026	705	102,195	102,900	251,653
SILICA	39	3,914	3,953	154,624	70	44,901	44,971	107,016
SUSP SOLID	187	33,163	33,350	308,066	374	62,174	62,548	213,705
OIL	22	270,010	270,032	93,504	51	282,319	282,371	97,213
SULPHUR	342	7,523	7,866	309,744	570	93,370	93,938	635,625
NHS	501	38,255	38,757	10,565	1,120	29,577	30,696	8,909
PHENOL	1	283	284	457	1	304	305	223
CYANIDE	11	30	40	994	23	45	68	267
ALUMINIUM	354	751	1,105	26,028	790	330	1,121	3,275
BORON	0	40	40	16	0	1,784	1,784	724
BROMINE	0	24	24	10	0	1,087	1,087	441
CADMIUM	0	2	2	273	0	23	23	549
CALCIUM	1,475	16,001	17,476	181,835	3,293	149,282	152,575	3,275,879
CHROMIUM	0	17	17	851	0	147	147	369
COPPER	0	19	19	345,085	1	18	19	2,076
FLUORIDE	44	91	135	2,543	99	526	625	5,511
IRON	10	1,968	1,977	13,049	16	4,424	4,441	11,580
LEAD	0	3	4	1,378	1	42	42	2,271
MAGNESIUM	106	2,256	2,363	132,269	176	27,389	27,565	172,945
MANGANESE	4	31	35	5,768	9	407	416	1,427
MERCURY	0	0	0	4	0	2	2	2
NICKEL	0	85	85	1,520	0	142	142	3,420
POTASSIUM	242	1,784	2,026	75,964	540	18,345	18,885	38,841
SODIUM	1,239	27,577	28,815	149,368	2,766	107,579	110,345	229,637
TITANIUM	0	774	774	71	0	230	230	21
ZINC	1	76	77	505	2	122	124	2,175
BOD	3,835	109,790	113,624	180,230	8,562	45,607	54,168	63,156

SYNERGISTIC SCENARIO

CANADA

CAPITAL COSTS

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
 UPPER LAKES REFERENCE GROUP
 WASTELOADING SIMULATION MODEL

DATE 04/20/76

ECONOMIC SUMMARY
 CAPITAL INVESTMENT ONLY
 SYNERGISTIC SCENARIO
 1961 CONSTANT DOLLARS

CANADA

YEAR	LAKE SUPERIOR				LAKE HURON			
	INDUSTRIAL		MUNICIPAL		INDUSTRIAL		MUNICIPAL	
	ITMI01	ITMI03	MTMI01	MTMI03	ITMI01	ITMI03	MTMI01	MTMI03
1974.	\$1,882,528	\$1,882,528	\$210,939	\$210,939	\$4,587,481	\$4,587,481	\$508,824	\$508,824
1980.	\$2,254,356	\$2,667,256	\$230,006	\$1,689,447	\$4,450,738	\$5,258,881	\$619,756	\$1,644,162
1985.	\$2,817,921	\$3,050,397	\$245,911	\$266,719	\$5,269,830	\$5,700,114	\$868,150	\$717,392
1990.	\$2,199,887	\$2,429,205	\$252,214	\$1,222,439	\$4,899,723	\$5,406,001	\$973,796	\$746,614
2000.	\$2,570,013	\$2,953,097	\$252,819	\$887,243	\$6,245,292	\$7,168,260	\$1,085,835	\$904,959
2010.	\$3,328,839	\$3,980,255	\$287,075	\$731,195	\$8,474,368	\$10,117,391	\$1,356,942	\$1,233,627
2020.	\$4,688,702	\$5,833,737	\$319,106	\$571,010	\$12,230,924	\$15,187,308	\$1,999,397	\$857,690

SYNERGISTIC SCENARIO

CANADA

REGION LOADINGS

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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SYNERGISTIC SCENARIO

LOADINGS FOR 1974. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	96	58	155	428
NITROGEN	615	1,289	1,903	3,434
DISS SOLID	10,551	203,312	213,863	817,329
CHLORIDE	1,439	1,251	2,689	40,227
SILICA	225	176	401	24,376
SUSP SOLID	1,940	14,087	16,027	36,913
OIL	116	1,697	1,814	0
SULPHUR	1,199	3,079	4,278	82,629
NH3	408	16,302	16,709	475
PHENOL	1	8	9	27
CYANIDE	9	0	9	34
ALUMINUM	288	338	625	918
BORON	0	12	12	0
BROMINE	0	7	7	0
CADMIUM	0	0	0	106
CALCIUM	1,199	5,785	6,984	50,761
CHROMIUM	0	7	7	92
COPPER	3	7	11	150
FLUORIDE	36	5	41	868
IRON	45	122	167	4,933
LEAD	3	1	4	336
MAGNESIUM	360	446	806	37,001
MANGANESE	4	4	7	422
MERCURY	0	0	0	1
NICKEL	1	4	4	189
POTASSIUM	196	329	526	5,121
SODIUM	1,007	11,633	12,641	50,419
TITANIUM	0	349	349	0
ZINC	4	20	24	199
BOD	3,118	48,382	51,500	113,599

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	33	35	239
NITROGEN	15	397	413	5,265
DISS SOLID	310	132,347	132,656	1,573,863
CHLORIDE	42	432	475	124,957
SILICA	5	1,211	1,217	72,748
SUSP SOLID	42	7,542	7,584	219,317
OIL	2	667	669	0
SULPHUR	35	1,638	1,673	102,667
NH3	12	11,489	11,501	202
PHENOL	0	5	5	109
CYANIDE	0	0	0	140
ALUMINUM	8	229	238	273
BORON	0	2	2	0
BROMINE	0	1	1	0
CADMIUM	0	1	1	55
CALCIUM	36	3,382	3,417	322
CHROMIUM	0	2	2	123
COPPER	0	1	1	134
FLUORIDE	1	2	4	735
IRON	1	73	75	3,240
LEAD	0	1	1	357
MAGNESIUM	11	609	620	73,150
MANGANESE	0	9	9	590
MERCURY	0	0	0	2
NICKEL	0	2	2	514
POTASSIUM	5	395	401	20,392
SODIUM	30	7,754	7,785	77,136
TITANIUM	0	237	237	0
ZINC	0	10	10	39
BOD	93	32,391	32,483	41,218

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	6	6	79,412
DISS SOLID	0	3,569	3,569	402,178
CHLORIDE	0	115	115	9,735
SILICA	0	795	795	25,830
SUSP SOLID	0	58	58	7,291
OIL	0	194	194	0
SULPHUR	0	14	14	45,853
NH3	0	425	425	104
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	2	2	167
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	4
CALCIUM	0	695	695	66,653
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	2	2	502
LEAD	0	0	0	40
MAGNESIUM	0	284	284	11,636
MANGANESE	0	4	4	4,280
MERCURY	0	0	0	2
NICKEL	0	0	0	40
POTASSIUM	0	181	181	5,238
SODIUM	0	145	145	6,919
TITANIUM	0	2	2	0
ZINC	0	0	0	4
BOD	0	213	213	184

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	73	23	95	425
NITROGEN	493	695	1,188	9,801
DISS SOLID	8,968	101,354	110,301	219,328
CHLORIDE	1,224	985	2,210	58,747
SILICA	181	197	378	30,507
SUSP SOLID	1,279	7,600	8,879	43,744
OIL	26	174,625	174,651	0
SULPHUR	1,020	1,681	2,700	79,394
NH3	347	5,859	6,206	5,870
PHENOL	0	175	176	200
CYANIDE	7	19	26	753
ALUMINUM	245	113	357	24,787
BORON	0	11	11	0
BROMINE	0	6	6	0
CADMIUM	0	0	0	108
CALCIUM	1,021	2,592	3,613	61,332
CHROMIUM	0	4	4	55
COPPER	3	7	10	344,764
FLUORIDE	31	54	85	540
IRON	36	1,150	1,186	3,825
LEAD	2	1	3	649
MAGNESIUM	306	216	522	10,353
MANGANESE	3	3	5	467
MERCURY	0	0	0	0
NICKEL	0	51	51	751
POTASSIUM	167	362	529	44,822
SODIUM	857	4,861	5,718	12,365
TITANIUM	0	116	116	0
ZINC	4	30	34	256
BOD	2,652	18,014	20,668	16,467

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE. ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	140	43	183	1,207
NITROGEN	895	1,326	2,220	3,622
DISS SOLID	15,748	267,624	283,372	485,448
CHLORIDE	2,182	4,846	7,027	42,492
SILICA	324	22,130	22,453	22,557
SUSP SOLID	3,695	11,018	14,713	48,783
OIL	437	115,975	116,411	0
SULPHUR	1,796	3,245	5,039	113,756
NH3	657	17,625	18,282	327
PHENOL	1	118	119	23
CYANIDE	14	13	26	52
ALUMINUM	464	159	623	504
BORON	0	65	65	0
BROMINE	0	40	40	0
CADMIUM	0	9	9	113
CALCIUM	1,931	25,430	27,362	61,444
CHROMIUM	1	7	8	57
COPPER	4	6	10	927
FLUORIDE	58	40	97	540
IRON	68	805	873	1,631
LEAD	3	1	4	682
MAGNESIUM	545	8,719	9,265	17,066
MANGANESE	5	137	142	437
MERCURY	0	0	0	0
NICKEL	1	43	44	398
POTASSIUM	317	5,435	5,752	5,689
SODIUM	1,623	9,593	11,216	22,008
TITANIUM	0	161	161	0
ZINC	6	35	42	284
BOD	5,021	24,002	29,023	18,511

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	86	93	1,612
NITROGEN	304	5,826	6,130	10,397
DISS SOLID	3,160	151,425	154,585	1,585,225
CHLORIDE	448	8,543	8,991	78,767
SILICA	45	763	808	47,808
SUSP SOLID	236	26,420	26,656	93,486
OIL	32	55,229	55,262	0
SULPHUR	362	11,101	11,462	236,357
NH3	705	2,291	2,994	752
PHENOL	1	57	58	76
CYANIDE	15	6	22	164
ALUMINUM	497	46	543	850
BORON	0	349	349	0
BROMINE	0	213	213	0
CADMIUM	0	0	0	359
CALCIUM	2,072	37,622	39,694	2,882,779
CHROMIUM	0	76	76	180
COPPER	1	4	5	899
FLUORIDE	62	42	104	3,868
IRON	11	529	539	6,337
LEAD	1	3	3	1,174
MAGNESIUM	112	3,326	3,439	44,752
MANGANESE	5	8	14	686
MERCURY	0	0	0	1
NICKEL	0	19	19	2,733
POTASSIUM	340	1,576	1,916	19,114
SODIUM	1,741	9,118	10,858	57,197
TITANIUM	0	24	24	0
ZINC	1	17	18	850
BOD	5,386	9,171	14,558	25,470

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	150	173	264
NITROGEN	237	3,261	3,497	6,896
DISS SOLID	6,041	298,722	304,763	1,533,515
CHLORIDE	857	61,963	62,820	106,332
SILICA	84	4,585	4,668	19,610
SUSP SOLID	617	17,969	18,587	68,844
OIL	58	13,427	13,485	0
SULPHUR	692	51,043	51,736	259,810
NH3	266	1,490	1,757	167
PHENOL	0	26	27	23
CYANIDE	5	12	17	48
ALUMINUM	188	61	249	2,215
BORON	0	646	646	0
BROMINE	0	394	394	0
CADMIUM	0	5	5	68
CALCIUM	784	32,322	33,106	279,240
CHROMIUM	0	17	17	86
COPPER	1	3	4	251
FLUORIDE	23	295	319	998
IRON	20	1,700	1,720	2,304
LEAD	1	27	28	407
MAGNESIUM	214	4,691	4,905	101,171
MANGANESE	2	119	122	166
MERCURY	0	1	1	0
NICKEL	0	32	32	243
POTASSIUM	129	5,169	5,297	8,119
SODIUM	659	57,079	57,737	119,897
TITANIUM	0	23	23	0
ZINC	2	37	39	1,015
BOD	2,038	7,393	9,432	18,019

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SYNERGISTIC SCENARIO

LOADINGS FOR 1980. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	63	62	125	399
NITROGEN	530	1,337	1,867	3,397
DISS SOLID	11,947	220,820	232,766	836,233
CHLORIDE	1,678	1,312	2,991	40,528
SILICA	190	189	379	24,354
SUSP SOLID	1,509	15,048	16,557	37,443
OIL	127	1,879	2,006	193
SULPHUR	1,365	3,327	4,693	83,044
NH3	513	17,685	18,197	1,963
PHENOL	1	9	10	27
CYANIDE	11	0	11	37
ALUMINUM	362	367	729	1,021
BORON	0	13	13	1
BROMINE	0	7	7	1
CADMIUM	0	0	0	106
CALCIUM	1,508	6,240	7,748	51,525
CHROMIUM	1	8	8	93
COPPER	2	8	10	149
FLUORIDE	45	5	51	878
IRON	42	131	175	4,941
LEAD	2	1	4	336
MAGNESIUM	419	485	904	37,100
MANGANESE	4	4	8	423
MERCURY	0	0	0	1
NICKEL	1	4	4	190
POTASSIUM	248	350	598	5,193
SODIUM	1,267	12,622	13,889	51,667
TITANIUM	0	379	379	30
ZINC	4	21	25	200
BOD	3,922	52,456	56,379	118,479

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

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REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	36	39	242
NITROGEN	16	430	446	5,299
DISS SOLID	341	143,725	144,065	1,585,273
CHLORIDE	48	471	518	125,000
SILICA	6	1,330	1,336	72,868
SUSP SOLID	42	8,182	8,223	219,956
OIL	2	728	730	61
SULPHUR	39	1,778	1,816	102,811
NH3	14	12,476	12,491	1,192
PHENOL	0	5	5	110
CYANIDE	0	0	0	140
ALUMINUM	10	248	259	293
BORON	0	2	2	0
BROMINE	0	1	1	0
CADMIUM	0	1	1	55
CALCIUM	43	3,686	3,728	633
CHROMIUM	0	2	2	123
COPPER	0	1	1	134
FLUORIDE	1	3	4	735
IRON	1	79	81	3,246
LEAD	0	1	1	357
MAGNESIUM	12	668	679	73,210
MANGANESE	0	10	10	591
MERCURY	0	0	0	2
NICKEL	0	2	2	514
POTASSIUM	7	433	439	20,431
SODIUM	36	8,419	8,455	77,806
TITANIUM	0	257	257	20
ZINC	0	11	11	40
BOD	112	35,153	35,266	44,001

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

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REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	7	7	79,412
DISS SOLID	0	3,911	3,911	402,520
CHLORIDE	0	127	127	9,746
SILICA	0	874	874	25,909
SUSP SOLID	0	64	64	7,296
OIL	0	219	219	25
SULPHUR	0	14	14	45,854
NI3	0	465	465	145
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	2	2	168
BORON	0	0	0	0
BROMINE	0	0	0	0
CAESIUM	0	0	0	4
CALCIUM	0	764	764	66,722
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	2	2	502
LEAD	0	0	0	40
MAGNESIUM	0	313	313	11,664
MANGANESE	0	5	5	4,280
MERCURY	0	0	0	2
NICKEL	0	0	0	40
POTASSIUM	0	199	199	5,256
SODIUM	0	158	158	6,934
TITANIUM	0	2	2	0
ZINC	0	1	1	4
BOD	0	231	231	203

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	61	23	85	415
NITROGEN	480	739	1,220	9,832
DISS SOLID	9,790	111,547	121,337	230,364
CHLORIDE	1,356	1,066	2,422	58,960
SILICA	172	219	390	30,519
SUSP SOLID	1,130	8,273	9,403	44,268
OIL	29	197,406	197,435	22,784
SULPHUR	1,116	1,838	2,954	79,649
NH3	422	6,375	6,797	6,461
PHENOL	1	198	198	222
CYANIDE	9	22	31	758
ALUMINUM	298	122	420	24,850
BORON	0	12	12	1
BROMINE	0	7	7	1
CADMIUM	0	0	0	108
CALCIUM	1,241	2,804	4,045	61,764
CHROMIUM	0	4	4	55
COPPER	2	8	11	344,764
FLUORIDE	37	61	98	553
IRON	36	1,298	1,335	3,974
LEAD	2	1	3	649
MAGNESIUM	339	235	574	10,405
MANGANESE	4	4	6	468
MERCURY	0	0	0	0
NICKEL	1	58	58	757
POTASSIUM	203	400	603	44,896
SODIUM	1,042	5,309	6,352	12,999
TITANIUM	0	126	126	10
ZINC	4	33	38	259
BOD	3,227	19,616	22,842	18,643

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

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REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	147	47	194	1,217
NITROGEN	999	1,379	2,378	3,779
DISS SOLID	17,964	293,376	311,341	513,417
CHLORIDE	2,497	5,264	7,761	43,225
SILICA	354	24,325	24,679	24,782
SUSP SOLID	3,930	11,785	15,715	49,785
OIL	465	131,090	131,555	15,143
SULPHUR	2,049	3,536	5,585	114,303
NHS	816	19,267	20,084	2,129
PHENOL	1	133	134	38
CYANIDE	17	14	32	57
ALUMINUM	576	174	750	631
BORON	0	72	72	7
BROMINE	0	44	44	4
CADMIUM	0	10	10	114
CALCIUM	2,402	27,866	30,267	64,350
CHROMIUM	1	8	9	58
COPPER	4	7	11	928
FLUORIDE	72	44	116	559
IRON	76	907	982	1,741
LEAD	4	1	4	683
MAGNESIUM	625	9,582	10,207	18,007
MANGANESE	6	150	157	451
MERCURY	0	0	0	0
NICKEL	1	49	49	403
POTASSIUM	394	5,968	6,362	6,298
SODIUM	2,018	10,481	12,497	23,290
TITANIUM	0	175	175	14
ZINC	7	39	47	289
BOD	6,244	26,048	32,292	21,779

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

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REGION 6 SEVFRN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	86	95	1,614
NITROGEN	350	5,842	6,192	10,459
DISS SOLID	3,020	166,036	169,057	1,599,696
CHLORIDE	427	8,968	9,394	79,171
SILICA	46	836	882	47,882
SUSP SOLID	261	26,841	27,102	93,932
OIL	40	62,427	62,466	7,204
SULPHUR	346	12,046	12,391	237,286
NH3	833	2,426	3,259	1,017
PHENOL	1	64	65	83
CYANIDE	18	7	25	167
ALUMINUM	589	50	638	945
BORON	0	387	387	38
BROMINE	0	236	236	23
CADMIUM	0	0	1	359
CALCIUM	2,452	40,774	43,227	2,886,313
CHROMIUM	0	82	82	187
COPPER	1	5	5	899
FLUORIDE	74	47	121	3,884
IRON	11	593	604	6,401
LEAD	1	3	4	1,174
MAGNESIUM	107	3,650	3,757	45,069
MANGANESE	7	9	16	688
MERCURY	0	0	0	1
NICKEL	0	22	22	2,736
POTASSIUM	402	1,664	2,066	19,265
SODIUM	2,059	9,974	12,033	58,372
TITANIUM	0	27	27	2
ZINC	1	19	20	851
BOD	6,375	9,569	15,944	26,856

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980, IN METRIC TONNES.

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REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	24	163	187	278
NITROGEN	267	3,344	3,612	7,010
DISS SOLID	6,724	330,372	337,096	1,565,849
CHLORIDE	955	68,531	69,486	112,999
SILICA	92	5,085	5,177	20,119
SUSP SOLID	656	18,849	19,505	69,763
OIL	60	15,128	15,188	1,704
SULPHUR	770	56,510	57,280	265,355
NH3	321	1,589	1,911	320
PHENOL	0	30	30	25
CYANIDE	7	13	20	49
ALUMINUM	227	67	293	2,260
BORON	0	715	715	69
BROMINE	0	437	437	42
CADMIUM	0	5	5	68
CALCIUM	944	35,480	36,424	282,560
CHROMIUM	0	18	19	86
COPPER	1	3	4	251
FLUORIDE	28	328	356	1,035
IRON	22	1,887	1,910	2,494
LEAD	1	30	31	410
MAGNESIUM	239	5,179	5,418	101,685
MANGANESE	3	132	135	179
MERCURY	0	1	1	0
NICKEL	0	36	36	247
POTASSIUM	155	5,697	5,852	8,674
SODIUM	793	63,249	64,043	126,203
TITANIUM	0	24	24	2
ZINC	3	40	43	1,020
BOU	2,455	7,891	10,347	18,934

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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SYNERGISTIC SCENARIO

LOADINGS FOR 1985. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	59	70	129	402
NITROGEN	516	1,450	1,965	3,495
DISS SOLID	11,866	249,087	260,952	864,418
CHLORIDE	1,669	1,417	3,084	40,622
SILICA	185	207	392	24,367
SUSP SOLID	1,406	16,782	18,188	39,073
OIL	112	2,094	2,206	392
SULPHUR	1,357	3,718	5,075	83,426
NH3	511	20,023	20,534	4,300
PHENOL	1	11	11	29
CYANIDE	11	0	11	37
ALUMINUM	361	416	777	1,069
BORON	0	14	14	3
BROMINE	0	8	8	2
CADMIUM	0	0	0	106
CALCIUM	1,504	6,911	8,415	52,192
CHROMIUM	1	8	9	93
COPPER	2	8	10	149
FLUORIDE	45	6	51	878
IRON	41	149	190	4,957
LEAD	2	2	4	336
MAGNESIUM	417	539	956	37,151
MANGANESE	4	4	9	423
MERCURY	0	0	0	1
NICKEL	1	4	5	190
POTASSIUM	247	385	632	5,228
SODIUM	1,264	14,269	15,532	53,311
TITANIUM	0	429	429	80
ZINC	4	23	28	203
BOD	3,911	59,366	63,277	125,376

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	40	43	247
NITROGEN	16	486	502	5,354
DISS SOLID CHLORIDE	338	162,518	162,856	1,604,064
SILICA	47	527	574	125,057
SUSP SOLID	5	1,478	1,483	73,015
OIL	40	9,262	9,302	221,036
SULPHUR	2	821	823	154
NH3	39	2,011	2,049	103,044
PHENOL	14	14,120	14,135	2,836
CYANIDE	0	6	6	111
ALUMINUM	0	0	0	140
BORON	10	282	292	327
BROMINE	0	2	2	0
CADMIUM	0	1	1	0
CALCIUM	0	1	1	55
CHROMIUM	43	4,144	4,187	1,092
COPPER	0	2	2	123
FLUORIDE	0	1	1	135
IRON	1	3	4	735
LEAD	1	90	92	3,257
MAGNESIUM	0	1	1	357
MANGANESE	12	745	757	73,286
MERCURY	0	11	11	592
NICKEL	0	0	0	2
POTASSIUM	0	2	2	514
SODIUM	7	483	491	20,481
TITANIUM	36	9,532	9,568	78,919
ZINC	0	291	291	54
BOD	0	12	12	40
	112	39,820	39,932	48,667

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	8	8	79,413
DISS SOLID CHLORIDE	0	4,338	4,338	402,947
SILICA	0	141	141	9,761
SUSP SOLID	0	971	971	26,006
OIL	0	71	71	7,304
SULPHUR	0	240	240	47
NH3	0	16	16	45,856
PHENOL	0	519	519	198
CYANIDE	0	0	0	29
ALUMINUM	0	0	0	61
BORON	0	2	2	168
BROMINE	0	0	0	0
CADMIUM	0	0	0	0
CALCIUM	0	0	0	4
CHROMIUM	0	849	849	66,806
COPPER	0	0	0	578
FLUORIDE	0	0	0	40
IRON	0	0	0	394
LEAD	0	2	2	502
MAGNESIUM	0	0	0	40
MANGANESE	0	347	347	11,698
MERCURY	0	6	6	4,281
NICKEL	0	0	0	2
POTASSIUM	0	1	1	40
SODIUM	0	221	221	5,278
TITANIUM	0	176	176	6,952
ZINC	0	2	2	0
BOD	0	1	1	4
	0	262	262	233

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	60	26	87	418
NITROGEN	478	803	1,282	9,894
DISS SOLID	9,788	124,657	134,445	243,471
CHLORIDE	1,356	1,151	2,507	59,045
SILICA	171	240	411	30,541
SUSP SOLID	1,112	9,158	10,270	45,135
OIL	25	216,735	216,761	42,110
SULPHUR	1,116	2,032	3,148	79,243
NH3	422	7,201	7,623	7,286
PHENOL	1	217	218	242
CYANIDE	9	23	32	760
ALUMINUM	298	139	437	24,866
BORON	0	13	13	2
BROMINE	0	8	8	1
CADMIUM	0	0	0	108
CALCIUM	1,242	3,088	4,329	62,049
CHROMIUM	0	4	4	56
COPPER	2	9	12	344,765
FLUORIDE	37	67	104	560
IRON	36	1,426	1,463	4,101
LEAD	2	1	3	649
MAGNESIUM	339	259	598	10,429
MANGANESE	4	4	7	469
MERCURY	0	0	0	0
NICKEL	1	63	64	762
POTASSIUM	203	438	642	44,934
SODIUM	1,043	5,958	7,000	13,648
TITANIUM	0	142	142	27
ZINC	4	37	40	263
BOD	3,228	22,123	25,351	21,151

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE. ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	134	51	185	1,209
NITROGEN	954	1,482	2,436	3,838
DISS SOLID	17,799	324,182	341,981	544,057
CHLORIDE	2,481	5,776	8,258	43,723
SILICA	336	27,016	27,352	27,455
SUSP SOLID	3,585	12,947	16,531	50,601
OIL	419	143,933	144,351	27,940
SULPHUR	2,031	3,880	5,911	114,629
NH3	829	21,568	22,396	4,441
PHENOL	1	147	148	51
CYANIDE	17	15	33	58
ALUMINUM	585	196	781	662
BORON	0	77	78	13
BROMINE	0	48	48	8
CADIUM	0	11	11	116
CALCIUM	2,437	30,806	33,243	67,326
CHROMIUM	1	8	9	58
COPPER	4	7	11	928
FLUORIDE	73	49	122	564
IRON	72	997	1,069	1,828
LEAD	4	1	4	683
MAGNESIUM	620	10,621	11,241	19,042
MANGANESE	7	167	174	468
MERCURY	0	0	0	0
NICKEL	1	54	55	409
POTASSIUM	400	6,618	7,017	6,954
SODIUM	2,047	11,710	13,757	24,549
TITANIUM	0	198	198	37
ZINC	7	43	50	293
BOD	6,336	29,394	35,731	25,218

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	91	99	1,618
NITROGEN	354	6,113	6,466	10,733
DISS SOLID	3,053	180,189	183,242	1,613,882
CHLORIDE	431	9,516	9,947	79,724
SILICA	46	917	963	47,964
SUSP SOLID	264	28,272	28,535	95,366
OIL	40	68,530	68,570	13,308
SULPHUR	349	12,974	13,325	238,219
NH3	842	2,667	3,509	1,267
PHENOL	1	70	71	89
CYANIDE	18	8	26	168
ALUMINUM	595	56	650	958
BORON	0	419	420	70
BROMINE	0	256	256	43
CADMIUM	0	1	1	359
CALCIUM	2,478	43,965	46,443	2,889,528
CHROMIUM	0	89	89	194
COPPER	1	5	6	900
FLUORIDE	75	51	125	3,889
IRON	11	648	659	6,456
LEAD	1	3	4	1,175
MAGNESIUM	108	3,956	4,064	45,376
MANGANESE	7	10	17	688
MERCURY	0	0	0	1
NICKEL	0	23	23	2,738
POTASSIUM	407	1,779	2,185	19,383
SODIUM	2,082	10,814	12,896	59,234
TITANIUM	0	31	31	5
ZINC	1	21	22	853
BOD	6,443	10,360	16,803	27,716

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	175	197	288
NITROGEN	255	3,526	3,782	7,179
DISS SOLID	6,546	357,354	363,900	1,592,653
CHLORIDE	931	73,910	74,840	118,353
SILICA	87	5,488	5,575	20,517
SUSP SOLID	594	20,057	20,651	70,907
OIL	53	16,564	16,616	3,131
SULPHUR	750	61,037	61,787	269,861
NH3	314	1,765	2,079	489
PHENOL	0	32	32	28
CYANIDE	6	14	21	50
ALUMINUM	222	74	296	2,262
BORON	0	777	777	130
BROMINE	0	473	473	79
CADMIUM	0	6	6	69
CALCIUM	924	38,390	39,315	285,449
CHROMIUM	0	20	20	88
COPPER	1	4	4	251
FLUORIDE	28	354	382	1,060
IRON	21	2,040	2,061	2,645
LEAD	1	32	33	412
MAGNESIUM	232	5,617	5,849	102,116
MANGANESE	3	143	145	190
MERCURY	0	1	1	0
NICKEL	0	39	39	249
POTASSIUM	151	6,144	6,295	9,118
SODIUM	777	68,362	69,138	131,298
TITANIUM	0	28	28	5
ZINC	3	44	46	1,022
BOD	2,404	8,625	11,029	19,616

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

SYNERGISTIC SCENARIO

LOADINGS FOR 1990. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	40	69	109	382
NITROGEN	427	1,456	1,883	3,414
DISS SOLID	10,664	245,230	255,894	859,361
CHLORIDE	1,514	1,436	2,949	40,486
SILICA	148	210	357	24,332
SUSP SOLID	1,061	16,616	17,677	38,562
OIL	99	2,098	2,197	383
SULPHUR	1,221	3,698	4,919	83,271
NHS	509	19,666	20,174	3,940
PHENOL	1	10	11	29
CYANIDE	11	0	11	37
ALUMINUM	359	409	767	1,059
BORON	0	14	14	4
BROMINE	0	9	9	2
CADMIUM	0	0	0	106
CALCIUM	1,496	6,919	8,415	52,192
CHROMIUM	1	8	9	93
COPPER	2	8	9	149
FLUORIDE	45	6	51	878
IRON	35	147	182	4,940
LEAD	2	2	3	335
MAGNESIUM	378	544	922	37,118
MANGANESE	4	4	8	423
MERCURY	0	0	0	1
NICKEL	1	4	5	190
POTASSIUM	246	387	633	5,228
SODIUM	1,256	14,047	15,304	53,081
TITANIUM	0	421	421	72
ZINC	4	23	26	201
BOD	3,888	58,315	62,203	124,302

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	1	40	41	245
NITROGEN	12	478	490	5,342
DISS SOLID	297	159,897	160,194	1,601,402
CHLORIDE	42	530	572	125,055
SILICA	4	1,533	1,536	73,068
SUSP SOLID	24	9,096	9,122	220,855
OIL	2	811	813	144
SULPHUR	34	1,978	2,012	103,006
NH3	14	13,900	13,914	2,615
PHENOL	0	6	6	111
CYANIDE	0	0	0	140
ALUMINUM	10	276	286	321
BORON	0	2	2	1
BROMINE	0	1	1	0
CADMIUM	0	1	1	55
CALCIUM	42	4,147	4,190	1,094
CHROMIUM	0	2	2	123
COPPER	0	1	1	134
FLUORIDE	1	3	4	735
IRON	1	88	89	3,254
LEAD	0	1	1	357
MAGNESIUM	11	762	772	73,302
MANGANESE	0	12	12	593
MERCURY	0	0	0	2
NICKEL	0	2	2	514
POTASSIUM	7	493	500	20,492
SODIUM	36	9,371	9,406	78,758
TITANIUM	0	286	286	49
ZINC	0	12	12	40
BOD	111	39,096	39,206	47,941

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	8	8	79,413
DISS SOLID	0	4,421	4,421	403,031
CHLORIDE	0	146	146	9,766
SILICA	0	1,008	1,008	26,043
SUSP SOLID	0	70	70	7,303
OIL	0	246	246	51
SULPHUR	0	16	16	45,856
NH3	0	534	534	212
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	2	2	168
BORON	0	0	0	0
BROMINE	0	0	0	0
CAESIUM	0	0	0	4
CALCIUM	0	880	880	66,839
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	2	2	502
LEAD	0	0	0	40
MAGNESIUM	0	361	361	11,712
MANGANESE	0	6	6	4,281
MERCURY	0	0	0	2
NICKEL	0	1	1	40
POTASSIUM	0	230	230	5,287
SODIUM	0	180	180	6,955
TITANIUM	0	2	2	0
ZINC	0	1	1	4
BOD	0	257	257	228

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	26	50	380
NITROGEN	320	813	1,133	9,746
DISS SOLID	8,559	124,340	132,899	241,925
CHLORIDE	1,217	1,186	2,403	58,941
SILICA	109	248	356	30,485
SUSP SOLID	557	9,181	9,738	44,603
OIL	24	221,344	221,369	46,718
SULPHUR	981	2,059	3,040	79,735
NH3	421	7,095	7,516	7,179
PHENOL	1	221	222	247
CYANIDE	9	24	33	760
ALUMINUM	297	136	433	24,863
BORON	0	14	14	4
BROMINE	0	8	8	2
CADMIUM	0	0	0	108
CALCIUM	1,238	3,128	4,366	62,086
CHROMIUM	0	4	5	56
COPPER	1	9	11	344,764
FLUORIDE	37	68	105	561
IRON	26	1,455	1,481	4,120
LEAD	1	1	2	648
MAGNESIUM	304	267	571	10,402
MANGANESE	4	4	7	469
MERCURY	0	0	0	0
NICKEL	0	65	65	764
POTASSIUM	203	447	651	44,943
SODIUM	1,040	5,928	6,969	13,615
TITANIUM	0	140	140	24
ZINC	3	38	40	262
BOO	3,220	21,826	25,046	20,847

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	121	51	172	1,195
NITROGEN	904	1,507	2,412	3,813
DISS SOLID	17,573	326,850	344,423	546,499
CHLORIDE	2,458	5,965	8,423	43,888
SILICA	315	28,051	28,366	28,470
SUSP SOLID	3,218	12,980	16,197	50,268
OIL	368	146,986	147,354	30,943
SULPHUR	2,007	3,987	5,995	114,711
NH3	838	21,869	22,707	4,752
PHENOL	1	149	150	54
CYANIDE	18	16	33	58
ALUMINUM	591	194	785	666
BORON	0	85	85	20
BROMINE	0	51	51	12
CADMIUM	0	12	12	116
CALCIUM	2,465	31,975	34,440	68,523
CHROMIUM	1	8	9	58
COPPER	4	7	11	928
FLUORIDE	74	49	123	566
IRON	69	1,018	1,086	1,845
LEAD	3	1	4	682
MAGNESIUM	615	11,036	11,651	19,452
MANGANESE	7	173	180	474
MERCURY	0	0	0	0
NICKEL	1	55	56	410
POTASSIUM	404	6,865	7,270	7,206
SODIUM	2,071	11,845	13,916	24,709
TITANIUM	0	194	194	33
ZINC	7	44	50	293
BOD	6,410	28,955	35,365	24,853

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVFRN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7			
NITROGEN	356	94	101	1,621
DISS SOLID	3,076	6,267	6,623	10,890
CHLORIDE	435	182,434	185,510	1,616,150
SILICA	47	9,819	10,253	80,030
SUSP SOLID	266	950	997	47,997
OIL	40	28,922	29,189	96,018
SULPHUR	352	69,989	70,030	14,768
NH3	849	13,688	14,040	238,935
PHENOL	1	2,676	3,525	1,283
CYANIDE	18	72	73	91
ALUMINUM	599	8	26	160
BORON	0	58	656	964
BROMINE	0	457	457	107
CADMIUM	0	279	279	66
CALCIUM	0	1	1	359
CHROMIUM	2,498	45,843	48,341	2,891,426
COPPER	0	90	90	194
FLUORIDE	1	5	6	900
IRON	75	52	127	3,891
LEAD	11	670	681	6,478
MAGNESIUM	1	3	4	1,175
MANGANESE	109	4,229	4,337	45,650
MERCURY	7	10	17	689
NICKEL	0	0	0	1
POTASSIUM	0	24	24	2,739
SODIUM	410	1,861	2,271	19,469
TITANIUM	2,098	11,475	13,573	59,911
ZINC	0	30	30	5
BOD	1	21	22	853
	6,493	10,445	16,938	27,851

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1970. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	20	183	203	293
NITROGEN	242	3,635	3,876	7,275
DISS SOLID	6,352	371,551	377,904	1,606,657
CHLORIDE	904	77,449	78,352	121,865
SILICA	83	5,753	5,836	20,777
SUSP SOLID	532	20,718	21,250	71,507
OIL	45	16,984	17,029	3,544
SULPHUR	728	64,393	65,122	273,197
NH3	307	1,756	2,063	473
PHENOL	0	33	33	30
CYANIDE	6	14	21	51
ALUMINUM	217	77	294	2,260
BORON	0	845	845	199
BROMINE	0	515	515	122
CADMIUM	0	6	6	69
CALCIUM	903	41,307	42,210	288,345
CHROMIUM	0	21	21	88
COPPER	1	4	4	251
FLUORIDE	27	371	398	1,076
IRON	20	2,144	2,164	2,748
LEAD	1	34	35	414
MAGNESIUM	226	6,089	6,315	102,582
MANGANESE	3	149	152	197
MERCURY	0	1	1	1
NICKEL	0	40	40	251
POTASSIUM	148	6,471	6,619	9,441
SODIUM	758	72,050	72,808	134,969
TITANIUM	0	27	27	4
ZINC	3	46	48	1,024
BOD	2,346	8,739	11,085	19,672

SYNERGISTIC SCENARIO

LOADINGS FOR 2000. IN METRIC TONNES.

REGION 1. KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	24			
NITROGEN	316	67	91	364
DISS SOLID		1,423	1,738	3,269
CHLORIDE	7,290	234,232	241,522	844,989
SILICA	1,036	1,424	2,459	39,997
SUSP SOLID	98	215	314	24,288
OIL	664	15,975	16,639	37,525
SULPHUR	61	2,094	2,156	342
NH3	835	3,588	4,423	82,775
PHENOL	443	18,734	19,177	2,943
CYANIDE	1	10	11	28
ALUMINUM	9	0	10	35
BORON	312	389	701	994
BROMINE	0	16	16	4
CADMIUM	0	10	10	3
CALCIUM	0	0	0	106
CHROMIUM	1,301	6,827	8,129	51,906
COPPER	0	9	9	93
FLUORIDE	1	7	8	148
IRON	39	6	45	872
LEAD	23	141	166	4,932
MAGNESIUM	1	2	3	335
MANGANESE	259	542	801	36,995
MERCURY	4	4	8	423
NICKEL	0	0	0	1
POTASSIUM	0	4	4	189
SODIUM	213	381	594	5,189
TITANIUM	1,094	13,426	14,520	52,298
ZINC	0	401	401	52
BOD	3	22	24	199
	3,384	55,553	58,937	121,037

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	1			
NITROGEN	8	39	39	242
DISS SOLID	199	457	465	5,317
CHLORIDE	28	152,858	153,056	1,594,264
SILICA	3	535	562	125,045
SUSP SOLID	14	1,660	1,661	73,193
OIL	1	8,664	8,679	220,412
SULPHUR	23	784	785	116
NH3	13	1,888	1,911	102,905
PHENOL	0	13,322	13,334	2,035
CYANIDE	0	6	6	110
ALUMINUM	9	0	0	140
BORON	0	263	272	307
BROMINE	0	2	2	1
CAESIUM	0	1	1	0
CALCIUM	37	1	1	55
CHROMIUM	0	4,135	4,171	1,076
COPPER	0	2	2	123
FLUORIDE	1	1	1	134
IRON	1	3	4	735
LEAD	0	85	86	3,251
MAGNESIUM	7	1	1	357
MANGANESE	0	799	805	73,336
MERCURY	0	12	12	593
NICKEL	0	0	0	2
POTASSIUM	6	2	2	514
SODIUM	31	516	521	20,513
TITANIUM	0	8,950	8,980	78,332
ZINC	0	272	272	35
BOD	95	11	11	40
		37,223	37,318	46,053

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 05/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	9	9	79,414
DISS SOLID	0	4,567	4,567	403,177
CHLORIDE	0	158	158	9,778
SILICA	0	1,094	1,094	26,130
SUSP SOLID	0	68	68	7,301
OIL	0	256	256	62
SULPHUR	0	15	15	45,855
NH3	0	568	568	248
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	2	2	168
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	4
CALCIUM	0	0	0	4
CHROMIUM	0	953	953	66,911
COPPER	0	0	0	578
FLUORIDE	0	0	0	40
IRON	0	0	0	394
LEAD	0	2	2	502
MAGNESIUM	0	0	0	40
MANGANESE	0	392	392	11,742
MERCURY	0	6	6	4,282
NICKEL	0	0	0	2
POTASSIUM	0	1	1	40
SODIUM	0	248	248	5,306
TITANIUM	0	187	187	6,962
ZINC	0	2	2	0
BOD	0	1	1	4
	0	246	246	216

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	11	25	37	366
NITROGEN	227	813	1,040	9,652
DISS SOLID CHLORIDE	5,752	122,549	128,300	237,327
SILICA	823	1,210	2,032	58,570
SUSP SOLID	68	260	328	30,456
OIL	311	9,113	9,423	44,288
SULPHUR	19	230,530	230,549	55,898
NH3	660	2,063	2,723	79,417
PHENOL	369	6,810	7,179	6,843
CYANIDE	0	230	231	256
ALUMINUM	8	25	32	760
BORON	260	130	390	24,820
BROMINE	0	15	15	4
CADMIUM	0	9	9	3
CALCIUM	0	0	0	108
CHROMIUM	1,085	3,146	4,233	61,952
COPPER	0	4	5	56
FLUORIDE	1	10	10	344,764
IRON	32	71	104	559
LEAD	17	1,512	1,529	4,168
MAGNESIUM	1	1	2	648
MANGANESE	205	275	480	10,310
MERCURY	3	4	6	468
NICKEL	0	0	0	0
POTASSIUM	0	68	68	766
SODIUM	178	459	637	44,930
TITANIUM	912	5,781	6,692	13,340
ZINC	0	133	133	17
BOD	2	39	40	262
	2,822	21,011	23,833	19,634

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	75	51	127	1,150
NITROGEN	672	1,508	2,181	3,582
DISS SOLID	13,640	326,515	340,155	542,231
CHLORIDE	1,919	6,304	8,223	43,689
SILICA	222	30,456	30,678	30,782
SUSP SOLID	2,020	12,759	14,779	48,848
OIL	221	153,068	153,289	36,877
SULPHUR	1,560	4,055	5,616	114,332
NI3	755	22,518	23,273	5,318
PHENOL	1	155	156	60
CYANIDE	16	16	32	58
ALUMINUM	534	185	718	598
BORON	0	93	93	28
BROMINE	0	57	57	17
CADMIUM	0	13	13	117
CALCIUM	2,222	34,308	36,530	70,612
CHROMIUM	1	9	9	58
COPPER	3	8	10	927
FLUORIDE	67	51	118	561
IRON	50	1,056	1,105	1,864
LEAD	2	1	4	682
MAGNESIUM	480	11,926	12,406	20,207
MANGANESE	6	188	194	488
MERCURY	0	0	0	0
NICKEL	1	58	58	412
POTASSIUM	365	7,420	7,785	7,721
SODIUM	1,867	11,971	13,838	24,630
TITANIUM	0	185	185	24
ZINC	5	45	50	293
BOD	5,777	27,747	33,524	23,012

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7			
NITROGEN	319	94	101	1,620
DISS SOLID	2,751	6,256	6,574	10,841
CHLORIDE	389	180,772	183,524	1,614,163
SILICA	41	9,975	10,363	80,140
SUSP SOLID	238	1,011	1,053	48,053
OIL	36	28,928	29,165	95,996
SULPHUR	315	72,889	72,925	17,664
NH3	760	14,429	14,744	239,639
PHENOL	1	2,638	3,398	1,156
CYANIDE	16	75	76	94
ALUMINUM	536	8	24	167
BORON	0	58	594	901
BROMINE	0	500	500	149
CADMIUM	0	304	304	91
CALCIUM	0	1	1	359
CHROMIUM	2,233	48,202	50,436	2,893,522
COPPER	0	93	93	197
FLUORIDE	1	5	6	900
IRON	67	54	121	3,884
LEAD	10	702	712	6,509
MAGNESIUM	0	4	4	1,175
MANGANESE	97	4,535	4,632	45,945
MERCURY	6	11	17	688
NICKEL	0	0	0	1
POTASSIUM	0	25	25	2,740
SODIUM	366	1,934	2,300	19,499
TITANIUM	1,876	12,146	14,022	60,360
ZINC	0	28	28	4
BOD	1	21	22	853
	5,806	10,287	16,093	27,005

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	12	188	200	291
NITROGEN	175	3,663	3,838	7,236
DISS SOLID	4,161	381,740	385,901	1,614,654
CHLORIDE	592	80,427	81,019	124,531
SILICA	54	5,978	6,031	20,973
SUSP SOLID	327	21,015	21,342	71,600
OIL	28	17,675	17,703	4,218
SULPHUR	477	67,524	68,001	276,076
NH3	257	1,700	1,958	367
PHENOL	0	34	35	31
CYANIDE	5	15	21	50
ALUMINUM	182	81	263	2,228
BORON	0	923	923	277
BROMINE	0	562	562	169
CADMIUM	0	0	6	69
CALCIUM	757	44,608	45,366	291,501
CHROMIUM	0	21	22	89
COPPER	1	4	4	251
FLUORIDE	23	385	408	1,086
IRON	14	2,239	2,252	2,836
LEAD	1	35	36	415
MAGNESIUM	149	6,621	6,769	103,036
MANGANESE	2	156	158	203
MERCURY	0	1	1	1
NICKEL	0	42	42	253
POTASSIUM	124	6,766	6,890	9,712
SODIUM	636	75,444	76,080	138,240
TITANIUM	0	26	26	4
ZINC	2	47	49	1,025
BOD	1,968	8,670	10,639	19,226

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

SYNERGISTIC SCENARIO

LOADINGS FOR 2010. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	12	64	77	349
NITROGEN	217	1,383	1,601	3,131
DISS SOLID	4,271	226,445	230,717	834,183
CHLORIDE	607	1,404	2,012	39,550
SILICA	56	225	281	24,256
SUSP SOLID	338	15,491	15,828	36,713
OIL	32	2,133	2,165	351
SULPHUR	490	3,523	4,012	82,364
NH3	375	18,120	18,495	2,260
PHENOL	0	10	10	28
CYANIDE	8	0	8	33
ALUMINIUM	265	376	641	932
BORON	0	17	17	6
BROMINE	0	11	11	4
CADMIUM	0	0	0	106
CALCIUM	1,103	6,858	7,960	51,736
CHROMIUM	0	9	9	94
COPPER	1	7	7	148
FLUORIDE	33	6	40	867
IRON	14	139	152	4,918
LEAD	1	2	2	334
MAGNESIUM	152	543	695	36,890
MANGANESE	3	4	7	422
MERCURY	0	0	0	1
NICKEL	0	4	4	189
POTASSIUM	181	375	556	5,152
SODIUM	926	13,019	13,946	51,723
TITANIUM	0	388	388	39
ZINC	2	21	23	197
BOD	2,867	53,715	56,581	118,680

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010, IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	37	38	241
NITROGEN	5	443	448	5,301
DISS SOLID	116	148,261	148,376	1,589,584
CHLORIDE	16	547	564	125,046
SILICA	2	1,826	1,827	73,359
SUSP SOLID	7	8,377	8,384	220,118
OIL	1	770	771	103
SULPHUR	14	1,829	1,842	102,836
NH3	11	12,977	12,988	1,688
PHENOL	0	6	6	110
CYANIDE	0	0	0	140
ALUMINIUM	7	255	262	297
BORON	0	3	3	1
BROMINE	0	2	2	1
CADMIUM	0	1	1	55
CALCIUM	31	4,199	4,230	1,134
CHROMIUM	0	2	2	123
COPPER	0	1	1	134
FLUORIDE	1	3	4	735
IRON	0	82	82	3,247
LEAD	0	1	1	357
MAGNESIUM	4	852	856	73,386
MANGANESE	0	13	14	594
MERCURY	0	0	0	2
NICKEL	0	2	2	514
POTASSIUM	5	548	553	20,545
SODIUM	26	8,681	8,707	78,059
TITANIUM	0	263	263	26
ZINC	0	11	11	40
BOD	80	35,985	36,065	44,800

ENVIRONMENT CANADA, INLAND WATER DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010, IN METRIC TONNES.

DATE

11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	9	9	79,414
DISS SOLID	0	4,772	4,772	403,381
CHLORIDE	0	174	174	9,793
SILICA	0	1,208	1,208	26,243
SUSP SOLID	0	66	66	7,299
OIL	0	272	272	78
SULPHUR	0	15	15	45,854
NH3	0	616	616	294
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINIUM	0	2	2	168
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	1	1	4
CALCIUM	0	1,049	1,049	67,007
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	2	2	502
LEAD	0	0	0	40
MAGNESIUM	0	431	431	11,782
MANGANESE	0	7	7	4,283
MERCURY	0	0	0	2
NICKEL	0	1	1	40
POTASSIUM	0	275	275	5,332
SODIUM	0	199	199	6,974
TITANIUM	0	2	2	0
ZINC	0	1	1	4
BOD	0	238	238	208

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	6	25	32	362
NITROGEN	167	816	985	9,597
DISS SOLID	3,406	122,882	126,288	235,314
CHLORIDE	486	1,229	1,715	58,253
SILICA	40	277	318	30,447
SUSP SOLID	188	9,177	9,365	44,230
OIL	14	245,255	245,269	70,619
SULPHUR	391	2,085	2,476	79,171
NH3	315	6,645	6,959	6,623
PHENOL	0	245	246	270
CYANIDE	6	26	33	760
ALUMINUM	222	125	347	24,777
BORON	0	16	16	5
BROMINE	0	10	10	4
CADMIUM	0	0	0	108
CALCIUM	926	3,223	4,149	61,869
CHROMIUM	0	5	5	56
COPPER	1	10	11	344,764
FLUORIDE	28	76	103	559
IRON	10	1,605	1,615	4,253
LEAD	0	1	1	647
MAGNESIUM	122	283	404	10,235
MANGANESE	3	4	6	468
MERCURY	0	0	0	0
NICKEL	0	71	71	770
POTASSIUM	152	478	630	44,923
SODIUM	778	5,717	6,494	13,142
TITANIUM	0	129	129	13
ZINC	1	40	41	264
BOD	2,408	20,561	22,968	18,769

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	34	52	86	1,110
NITROGEN	440	1,505	1,944	3,345
DISS SOLID	8,234	327,324	335,558	537,634
CHLORIDE	1,164	6,722	7,886	43,350
SILICA	122	33,591	33,713	33,717
SUSP SOLID	954	12,606	13,560	47,631
OIL	102	162,823	162,924	46,513
SULPHUR	942	4,130	5,072	113,790
NH3	662	23,642	24,305	6,350
PHENOL	1	165	166	69
CYANIDE	14	18	32	57
ALUMINUM	468	179	647	528
BORON	0	100	100	35
BROMINE	0	60	60	22
CADMIUM	0	14	14	118
CALCIUM	1,949	37,334	39,282	73,365
CHROMIUM	0	9	10	58
COPPER	2	8	9	926
FLUORIDE	58	54	113	555
IRON	29	1,118	1,146	1,904
LEAD	1	1	2	680
MAGNESIUM	291	13,062	13,352	21,154
MANGANESE	5	207	212	507
MERCURY	0	0	0	0
NICKEL	0	62	62	416
POTASSIUM	320	8,140	8,460	8,397
SODIUM	1,637	12,273	13,911	24,703
TITANIUM	0	179	179	18
ZINC	3	48	50	293
BOD	5,068	26,996	32,064	21,552

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	5	93	97	1,616
NITROGEN	267	6,124	6,391	10,658
DISS SOLID	1,625	177,139	178,764	1,609,403
CHLORIDE	228	10,020	10,254	80,030
SILICA	29	1,089	1,118	48,118
SUSP SOLID	187	28,554	28,742	95,572
OIL	33	77,535	77,568	22,307
SULPHUR	185	15,144	15,330	240,224
NH3	661	2,615	3,277	1,035
PHENOL	1	79	80	98
CYANIDE	14	9	23	166
ALUMINUM	466	59	526	833
BORON	0	537	537	187
BROMINE	0	328	328	114
CADMIUM	0	1	1	359
CALCIUM	1,944	51,353	53,297	2,896,383
CHROMIUM	0	100	100	205
COPPER	0	5	6	900
FLUORIDE	58	57	115	3,878
IRON	6	745	751	6,548
LEAD	0	4	4	1,175
MAGNESIUM	57	4,819	4,875	46,188
MANGANESE	5	12	17	688
MERCURY	0	0	0	1
NICKEL	0	26	27	2,741
POTASSIUM	319	1,989	2,309	19,506
SODIUM	1,633	12,731	14,363	60,702
TITANIUM	0	27	27	3
ZINC	1	22	22	853
BOD	5,053	10,106	15,160	26,072

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	6	192	197	208
NITROGEN	118	3,628	3,747	7,144
DISS SOLID CHLORIDE	2,354	387,845	390,199	1,618,952
SILICA	335	82,545	82,881	126,393
SUSP SOLID	30	6,141	6,170	21,112
OIL	167	21,030	21,198	71,455
SULPHUR	15	18,692	18,707	5,223
NH3	270	69,984	70,254	278,329
PHENOL	211	1,657	1,868	277
CYANIDE	0	36	37	32
ALUMINUM	4	15	20	50
BORON	149	85	233	2,199
BROMINE	0	993	993	347
CADMIUM	0	606	606	212
CALCIUM	0	7	7	70
CHROMIUM	618	47,701	48,319	294,454
COPPER	0	23	23	90
FLUORIDE	0	4	4	251
IRON	19	396	415	1,094
LEAD	7	2,315	2,322	2,906
MAGNESIUM	0	36	37	416
MANGANESE	84	7,091	7,175	103,442
MERCURY	2	160	161	206
NICKEL	0	1	1	1
POTASSIUM	0	44	44	254
SODIUM	102	6,988	7,090	9,912
TITANIUM	519	78,080	78,599	140,759
ZINC	0	25	25	3
BOD	1	49	49	1,025
	1,607	8,590	10,198	18,785

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

SYNERGISTIC SCENARIO

LOADINGS FOR 2020. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	64	67	340
NITROGEN	121	1,362	1,482	3,013
DISS SOLID	1,593	223,833	225,426	828,893
CHLORIDE	227	1,400	1,626	39,164
SILICA	21	239	260	24,235
SUSP SOLID	100	15,330	15,430	36,315
OIL	12	2,232	2,244	430
SULPHUR	183	3,540	3,722	82,073
NI3	267	17,967	18,235	2,001
PHENOL	0	10	10	28
CYANIDE	5	0	6	32
ALUMINUM	189	373	562	854
BORON	0	19	19	8
BROMINE	0	12	12	4
CADMIUM	0	0	0	106
CALCIUM	787	7,078	7,865	51,642
CHROMIUM	0	10	10	94
COPPER	0	7	7	147
FLUORIDE	23	6	30	857
IRON	5	139	144	4,910
LEAD	0	2	2	334
MAGNESIUM	57	556	612	36,807
MANGANESE	2	4	6	421
MERCURY	0	0	0	1
NICKEL	0	4	4	189
POTASSIUM	129	377	507	5,102
SODIUM	661	12,938	13,599	51,377
TITANIUM	0	384	384	35
ZINC	1	21	21	195
BOD	2,047	53,239	55,286	117,385

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	37	37	240
NITROGEN	4	440	443	5,296
DISS SOLID	44	147,288	147,332	1,588,540
CHLORIDE	6	572	579	125,061
SILICA	1	2,030	2,030	73,562
SUSP SOLID	3	8,302	8,304	220,037
OIL	0	778	778	110
SULPHUR	5	1,816	1,822	102,815
NH3	7	12,961	12,969	1,670
PHENOL	0	5	5	110
CYANIDE	0	0	0	140
ALUMINUM	5	252	257	293
BORON	0	3	3	1
BROMINE	0	2	2	1
CADMIUM	0	1	1	55
CALCIUM	22	4,363	4,385	1,290
CHROMIUM	0	2	2	123
COPPER	0	1	1	134
FLUORIDE	1	3	3	734
IRON	0	81	81	3,246
LEAD	0	1	1	357
MAGNESIUM	2	923	925	73,454
MANGANESE	0	14	14	596
MERCURY	0	0	0	2
NICKEL	0	2	2	514
POTASSIUM	4	593	597	20,588
SODIUM	18	8,635	8,653	78,004
TITANIUM	0	261	261	24
ZINC	0	11	11	40
BCD	57	35,671	35,727	44,463

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	10	10	79,415
DISS SOLID	0	5,052	5,052	403,661
CHLORIDE	0	193	193	9,812
SILICA	0	1,345	1,345	26,380
SUSP SOLID	0	65	65	7,298
OIL	0	296	296	103
SULPHUR	0	15	15	45,854
NH3	0	676	676	355
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	2	2	168
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	1	1	4
CALCIUM	0	1,166	1,166	67,125
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	394
IRON	0	3	3	503
LEAD	0	0	0	40
MAGNESIUM	0	480	480	11,831
MANGANESE	0	8	8	4,284
MERCURY	0	0	0	2
NICKEL	0	1	1	40
POTASSIUM	0	305	305	5,363
SODIUM	0	214	214	6,989
TITANIUM	0	2	2	0
ZINC	0	1	1	4
BOD	0	236	236	206

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	25	27	357
NITROGEN	103	836	938	9,551
DISS SOLID	1,347	126,377	127,724	236,751
CHLORIDE	192	1,260	1,452	57,990
SILICA	18	300	318	30,447
SUSP SOLID	85	9,466	9,551	44,415
OIL	10	267,503	267,513	92,862
SULPHUR	155	2,153	2,307	79,002
NH3	227	6,651	6,877	6,541
PHENOL	0	267	267	292
CYANIDE	4	29	33	761
ALUMINUM	160	124	284	24,714
BORON	0	18	18	7
BROMINE	0	11	11	4
CADMIUM	0	0	0	108
CALCIUM	666	3,394	4,060	61,780
CHROMIUM	0	5	5	56
COPPER	0	11	11	344,765
FLUORIDE	20	82	102	557
IRON	4	1,745	1,750	4,388
LEAD	0	1	1	647
MAGNESIUM	48	298	346	10,176
MANGANESE	2	4	5	467
MERCURY	0	0	0	0
NICKEL	0	77	77	777
POTASSIUM	109	508	617	44,910
SODIUM	559	5,791	6,349	12,997
TITANIUM	0	128	128	12
ZINC	1	43	44	266
BOD	1,732	20,644	22,376	18,176

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE. ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	5	53	58	1,082
NITROGEN	221	1,518	1,740	3,141
DISS SOLID	2,917	332,117	335,034	537,110
CHLORIDE	415	7,244	7,659	43,123
SILICA	38	37,402	37,440	37,543
SUSP SOLID	183	12,680	12,863	46,933
OIL	21	177,569	177,590	61,178
SULPHUR	335	4,288	4,621	113,339
NH3	490	25,291	25,781	7,825
PHENOL	1	179	180	84
CYANIDE	11	19	30	55
ALUMINUM	346	178	524	405
BORON	0	109	109	44
BROMINE	0	67	67	27
CADMIUM	0	15	15	120
CALCIUM	1,441	41,173	42,614	76,697
CHROMIUM	0	10	11	59
COPPER	0	9	9	926
FLUORIDE	43	58	102	544
IRON	9	1,213	1,222	1,980
LEAD	0	1	2	680
MAGNESIUM	104	14,454	14,558	22,359
MANGANESE	4	230	234	528
MERCURY	0	0	0	0
NICKEL	0	68	68	421
POTASSIUM	237	9,024	9,261	9,197
SODIUM	1,211	12,854	14,064	24,857
TITANIUM	0	177	177	16
ZINC	1	51	52	294
BOD	3,748	26,930	30,677	20,165

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG HAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	4	91	95	1,615
NITROGEN	196	6,008	6,204	10,471
DISS SOLID CHLORIDE	1,193	173,939	175,131	1,605,771
SILICA	167	10,141	10,308	80,084
SUSP SOLID	22	1,185	1,207	48,207
OIL	138	28,368	28,506	95,335
SULPHUR	24	84,554	84,578	29,317
NH3	136	16,174	16,311	241,205
PHENOL	485	2,640	3,125	883
CYANIDE	1	86	87	105
ALUMINUM	10	10	20	163
BORON	342	63	405	712
BROMINE	0	588	588	239
CADMIUM	0	358	358	145
CALCIUM	0	1	1	359
CHROMIUM	1,427	56,122	57,549	2,900,633
COPPER	0	112	112	217
FLUORIDE	0	6	6	900
IRON	43	61	104	3,867
LEAD	4	808	813	6,610
MAGNESIUM	0	4	4	1,175
MANGANESE	41	5,207	5,250	46,561
MERCURY	4	13	16	688
NICKEL	0	0	0	1
POTASSIUM	0	29	29	2,743
SODIUM	234	2,070	2,304	19,501
TITANIUM	1,198	13,549	14,747	61,085
ZINC	0	27	27	3
BOD	1	23	23	854
	3,708	10,061	13,769	24,682

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE. ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	195	197	288
NITROGEN	66	3,600	3,666	7,063
DISS SOLID	861	394,632	395,494	1,624,247
CHLORIDE	122	84,810	84,932	128,444
SILICA	11	6,313	6,324	21,266
SUSP SOLID	54	21,126	21,180	71,437
OIL	6	20,197	20,203	6,718
SULPHUR	99	72,908	73,006	281,082
NH3	145	1,646	1,791	201
PHENOL	0	39	39	34
CYANIDE	3	16	19	49
ALUMINIUM	103	90	192	2,158
BORON	0	1,087	1,087	441
BROMINE	0	662	662	269
CADMIUM	0	7	7	70
CALCIUM	426	51,987	52,412	298,547
CHROMIUM	0	24	24	93
COPPER	0	4	4	251
FLUORIDE	13	408	420	1,099
IRON	3	2,403	2,406	2,990
LEAD	0	38	38	417
MAGNESIUM	31	7,727	7,758	104,025
MANGANESE	1	165	166	210
MERCURY	0	1	1	1
NICKEL	0	45	45	256
POTASSIUM	70	7,250	7,321	10,142
SODIUM	357	81,177	81,535	143,695
TITANIUM	0	25	25	3
ZINC	0	49	49	1,026
BOD	1,107	8,616	9,723	18,309

SYNERGISTIC SCENARIO

U.S.A.

LOADING SUMMARY

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

PAGE 1

LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 1974. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	230	31	259	1,841	377	109	486	1,005 2,398
NITROGEN	843	1,220	2,065	19,747	1,616	3,465	5,080	29,221
DISS SOLID	35,815	75,494	111,308	2,423,600	81,487	585,162	666,649	4,174,413
CHLORIDE	5,134	6,987	12,120	109,208	11,910	116,951	128,861	471,890
SILICA	362	9,123	9,485	208,415	686	809	1,495	96,556
SUSP SOLID	8,685	53,222	61,908	23,192,100	16,556	541,795	558,351	689,685
OIL	534	706	1,239	18,688	1,284	860	2,145	31,398
SULPHUR	10,206	5,282	15,489	180,658	23,314	36,407	59,720	479,150
NH3	822	238	1,059	2,318	1,976	989	2,966	2,309
PHENOL	0	34	35	155	1	18	19	253
CYANIDE	26	3	29	90	64	14	77	2
ALUMINIUM	880	195	1,075	0	2,118	194	2,312	0
BORON	0	24	25	0	0	1,714	1,714	0
BROMINE	0	15	15	0	0	1,045	1,045	0
CADMIUM	3	4	7	32	7	1	7	18
CALCIUM	8,947	12,853	21,801	319,174	21,527	98,726	120,253	715,096
CHROMIUM	44	2	46	181	130	2	131	6
COPPER	69	4	74	641	122	1	122	56
FLUORIDE	110	24	134	4,168	265	93	357	2,933
IRON	1,481	199	1,679	40,478	3,024	982	4,006	22,216
LEAD	34	5	40	754	62	7	70	87
MAGNESIUM	2,640	3,662	6,303	216,007	6,125	12,337	18,462	208,358
MANGANESE	2,786	62	2,849	1,363	6,705	19	6,724	335
MERCURY	0	0	0	12	0	0	0	2
NICKEL	41	5	47	219	95	4	99	81
POTASSIUM	1,188	2,483	3,671	43,690	2,858	3,186	6,044	27,806
SODIUM	9,387	10,444	19,831	96,579	22,586	35,417	58,002	211,988
TITANIUM	0	200	200	0	0	93	93	0
ZINC	98	89	187	1,013	201	59	260	210
BOU	14,521	8,956	23,477	57,889	34,938	6,953	41,891	49,003

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 1980. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	LAKE SUPERIOR			LAKE HURON				
	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	203	29	232	1,814	376	110	486	1,005
NITROGEN	826	1,148	1,974	12,656	1,751	3,448	5,199	29,341
DISS SOLID	37,104	69,527	106,630	2,418,922	90,599	607,757	698,356	4,206,120
CHLORIDE	5,368	6,547	11,913	109,002	13,292	121,846	135,138	478,167
SILICA	344	7,861	8,204	207,135	724	715	1,439	96,500
SUSP SOLID	8,128	49,159	57,288	23,187,479	16,953	568,886	585,840	717,175
OIL	544	678	1,222	18,671	1,340	816	2,156	31,410
SULPHUR	10,593	4,916	15,509	180,679	25,941	37,032	62,973	482,403
NH3	967	219	1,186	2,444	2,397	983	3,379	2,723
PHENOL	1	34	34	155	1	19	20	253
CYANIDE	32	2	33	95	77	13	89	14
ALUMINIUM	1,036	194	1,230	155	2,568	205	2,773	461
BORON	0	27	27	3	0	1,814	1,815	101
BROMINE	0	16	16	2	0	1,106	1,106	61
CADMIUM	3	4	6	32	7	1	8	18
CALCIUM	10,535	11,847	22,382	319,756	26,105	103,200	129,304	724,147
CHROMIUM	51	2	53	188	148	1	149	25
COPPER	64	4	68	634	127	1	128	61
FLUORIDE	130	21	150	4,185	321	84	405	2,981
IRON	1,454	179	1,633	40,432	3,258	958	4,216	22,426
LEAD	32	5	37	751	67	7	74	91
MAGNESIUM	2,760	3,236	5,996	215,700	6,836	13,013	19,850	209,746
MANGANESE	3,281	54	3,335	1,850	8,131	16	8,147	1,758
MERCURY	0	0	0	12	0	0	1	2
NICKEL	43	5	48	220	106	4	110	91
POTASSIUM	1,399	2,170	3,569	43,588	3,466	3,211	6,677	28,438
SODIUM	11,054	9,980	21,034	97,782	27,388	36,031	63,418	217,403
TITANIUM	0	198	198	(2)	0	97	97	4
ZINC	96	87	184	1,011	218	59	277	227
BOU	17,098	8,788	25,886	60,298	42,366	6,956	49,322	56,434

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 1985. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	LAKE SUPERIOR				LAKE HURON			
	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	187	29	216	1,798				
NITROGEN	781	1,124	1,904	19,587	347	118	464	29,483
DISS SOLID	35,761	68,555	104,315	2,416,607	1,697	3,645	5,341	29,483
CHLORIDE	5,179	6,587	11,767	108,854	90,828	661,488	752,316	4,260,081
SILICA	324	7,297	7,621	206,552	13,354	132,867	146,221	489,251
SUSP SOLID	7,370	47,265	54,634	23,184,827	699	754	1,454	96,515
OIL	470	703	1,172	18,620	15,602	619,222	634,824	766,159
SULPHUR	10,212	5,027	15,240	180,410	1,202	857	2,058	31,312
NH3	940	213	1,154	2,412	26,018	40,092	66,110	485,540
PHENOL	1	36	36	156	2,426	1,032	3,459	2,802
CYANIDE	31	2	32	94	1	20	22	255
ALUMINIUM	1,008	203	1,211	136	78	12	90	15
BORON	0	27	27	2	2,600	221	2,822	509
BROMINE	0	16	16	1	0	1,985	1,985	271
CADMIUM	3	3	6	32	0	1,211	1,211	166
CALCIUM	10,245	11,497	21,741	319,116	7	1	8	18
CHROMIUM	49	2	50	186	26,430	112,032	138,462	733,306
COPPER	61	4	65	631	149	2	150	25
FLUORIDE	126	22	148	4,181	122	1	124	57
IRON	1,377	182	1,559	40,359	325	87	412	2,988
LEAD	31	4	35	750	3,183	1,014	4,198	22,407
MAGNESIUM	2,664	3,038	5,702	215,406	65	8	72	89
MANGANESE	3,191	50	3,242	1,756	6,868	14,204	21,072	210,968
MERCURY	0	0	0	12	8,232	17	8,249	1,860
NICKEL	41	5	47	218	0	0	1	2
POTASSIUM	1,361	2,049	3,409	43,429	107	4	111	92
SODIUM	10,749	10,337	21,086	97,834	3,510	3,465	6,975	28,736
TITANIUM	0	208	208	8	27,731	39,059	66,790	220,775
ZINC	93	91	184	1,010	0	104	104	11
BOU	16,628	9,094	25,721	60,133	215	62	277	227
					42,896	7,300	50,195	57,307

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 1990. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	147	29	176	1,759	318	127	445	2,357
NITROGEN	674	1,096	1,771	19,453	1,634	3,835	5,469	29,609
DISS SOLID	30,651	67,791	98,442	2,410,733	81,489	715,433	796,922	4,304,687
CHLORIDE	4,460	6,651	11,111	108,199	11,971	143,935	155,906	498,936
SILICA	266	6,788	7,054	205,984	638	807	1,445	96,506
SUSP SOLID	6,079	45,379	51,457	23,181,649	14,393	668,733	683,127	814,462
OIL	426	729	1,155	18,603	1,134	900	2,033	31,288
SULPHUR	8,762	5,164	13,927	179,096	23,339	43,225	66,563	485,993
NHS	954	208	1,162	2,420	2,561	1,077	3,640	2,983
PHENOL	1	37	38	158	2	21	23	256
CYANIDE	31	2	32	94	82	12	95	19
ALUMINIUM	1,021	212	1,234	159	2,745	238	2,982	670
BORON	0	26	26	2	0	2,153	2,154	439
BROMINE	0	16	16	1	0	1,312	1,312	268
CADMIUM	3	3	5	32	7	1	7	18
CALCIUM	10,387	11,159	21,546	318,920	27,905	120,768	148,674	743,516
CHROMIUM	45	2	47	182	133	2	135	10
COPPER	49	4	52	619	112	1	113	46
FLUORIDE	128	23	150	4,184	343	90	434	3,010
IRON	1,153	187	1,340	40,139	2,888	1,071	3,959	22,169
LEAD	25	4	30	743	58	8	67	84
MAGNESIUM	2,294	2,854	5,148	214,853	6,156	15,379	21,536	211,432
MANGANESE	3,236	48	3,283	1,797	8,692	19	8,710	2,321
MERCURY	0	0	0	12	1	0	1	2
NICKEL	36	4	40	212	95	4	100	81
POTASSIUM	1,380	1,941	3,321	43,339	3,705	3,726	7,431	29,192
SODIUM	10,898	10,727	21,625	98,373	29,278	42,160	71,438	225,423
TITANIUM	0	218	218	18	0	109	109	16
ZINC	77	95	172	998	194	64	258	208
SDI	16,858	9,392	26,250	60,663	45,289	7,602	52,892	60,004

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 2000. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	68	30	97	1,679	194	141	336	2,249
NITROGEN	415	1,061	1,476	19,158	1,204	4,144	5,347	29,489
DISS SOLID	19,196	67,034	86,230	2,398,521	55,760	813,440	869,200	4,376,965
CHLORIDE	2,825	6,797	9,622	106,709	8,206	164,109	172,315	515,345
SILICA	146	6,013	6,159	205,088	422	871	1,294	96,355
SUSP SOLID	3,097	43,232	46,329	23,176,521	8,942	760,045	768,987	900,322
OIL	245	774	1,019	18,467	706	958	1,663	30,918
SULPHUR	5,500	5,365	10,865	176,035	15,976	48,719	64,695	484,124
NH3	787	201	987	2,246	2,288	1,148	3,435	2,778
PHENOL	0	40	40	161	1	23	23	257
CYANIDE	25	2	27	88	74	11	85	10
ALUMINUM	842	230	1,073	(3)	2,452	266	2,716	404
BORON	0	27	27	3	0	2,467	2,468	753
BROMINE	0	16	16	2	0	1,504	1,504	459
CADMIUM	2	3	4	30	4	1	5	15
CALCIUM	8,564	10,774	19,338	316,713	24,922	136,976	161,897	756,740
CHROMIUM	32	2	33	168	92	2	93	(32)
COPPER	25	3	29	595	74	1	76	8
FLUORIDE	105	23	128	4,162	306	94	400	2,975
IRON	667	193	859	39,658	1,933	1,156	3,089	21,299
LEAD	14	4	18	733	39	9	49	66
MAGNESIUM	1,453	2,591	4,044	213,748	4,220	17,566	21,786	211,683
MANGANESE	2,668	43	2,711	1,225	7,762	20	7,782	1,393
MERCURY	0	0	0	12	0	0	0	2
NICKEL	23	4	27	199	66	4	70	51
POTASSIUM	1,138	1,778	2,914	42,934	3,309	4,173	7,483	29,244
SODIUM	8,986	11,383	20,369	97,117	26,147	47,557	73,705	227,689
TITANIUM	0	236	236	36	0	118	118	25
ZINC	45	101	146	973	131	67	198	148
BOD	13,900	9,966	23,865	58,278	40,447	8,063	48,510	55,622

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 2010. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	28	29	57	1,639	86	149	235	264 2,147
NITROGEN	248	1,020	1,266	18,949	777	4,252	5,029	29,169
DISS SOLID	9,459	64,958	74,417	2,386,708	29,732	869,409	899,141	4,406,906
CHLORIDE	1,394	6,710	8,104	105,193	4,384	175,774	180,158	523,187
SILICA	69	5,343	5,422	204,353	218	863	1,080	96,141
SUSP SOLID	1,319	41,378	42,697	23,172,889	4,120	813,999	818,119	949,453
OIL	108	787	895	18,343	336	960	1,296	30,550
SULPHUR	2,711	5,324	8,035	173,205	8,522	51,570	60,091	479,521
MNS	605	192	796	2,055	1,904	1,166	3,070	2,413
PHENOL	0	41	42	162	1	23	24	257
CYANIDE	20	2	21	82	61	10	71	(4)
ALUMINIUM	648	239	886	(188)	2,040	281	2,321	9
BORON	0	29	29	4	0	2,659	2,659	945
BROMINE	0	18	18	3	0	1,621	1,621	576
CADMIUM	1	3	3	29	3	1	4	14
CALCIUM	6,584	10,365	16,950	314,324	20,741	146,479	167,219	762,062
CHROMIUM	15	2	17	152	49	2	50	(74)
COPPER	13	3	14	581	38	1	40	(28)
FLUORIDE	81	22	103	4,137	255	90	346	2,921
IRON	321	189	509	39,309	1,007	1,178	2,186	20,395
LEAD	6	4	11	725	21	10	30	47
MAGNESIUM	717	2,366	3,083	212,788	2,255	18,887	21,141	211,037
MANGANESE	2,051	40	2,091	605	6,460	20	6,480	91
MERCURY	0	0	0	12	0	0	1	2
NICKEL	11	4	15	187	35	4	40	21
POTASSIUM	874	1,623	2,497	42,516	2,754	4,391	7,145	28,906
SODIUM	6,908	11,551	18,459	95,207	21,761	50,324	72,086	226,070
TITANIUM	0	245	245	45	0	122	122	30
ZINC	22	104	126	952	69	67	136	86
BOU	10,686	10,206	20,892	55,305	33,662	8,154	41,816	48,928

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY, SYNERGISTIC SCENARIO

LOADINGS FOR 2020. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	4	27	32	1,614	15	144	159	
NITROGEN	122	896	1,018	18,700	414	4,053	4,467	479 2,072
DISS SOLID CHLORIDE	2,512	58,059	60,572	2,372,863	8,564	850,397	858,961	4,366,726
SILICA	19	6,071	6,441	103,530	1,262	172,160	173,423	516,452
SUSP SOLID	267	4,428	4,446	203,377	63	834	897	95,959
OIL	30	35,657	35,924	23,166,116	911	795,406	796,316	927,652
SULPHUR	720	749	778	18,227	101	913	1,012	30,267
NH3	409	4,972	5,692	170,861	2,454	50,304	52,758	472,187
PHENOL	0	171	580	1,838	1,392	1,105	2,498	1,841
CYANIDE	14	40	40	160	1	22	23	256
ALUMINIUM	437	2	14	76	45	9	53	(22)
BORON	0	230	667	(408)	1,492	271	1,763	(549)
BROMINE	0	24	24	0	0	2,607	2,607	894
CADMIUM	0	15	15	0	0	1,589	1,589	544
CALCIUM	4,450	2	2	28	1	1	2	12
CHROMIUM	4	9,112	13,561	310,936	15,168	142,778	157,946	752,789
COPPER	4	2	5	141	14	2	15	(109)
FLUORIDE	4	2	5	572	11	1	13	(55)
IRON	55	21	76	4,110	186	86	272	2,848
LEAD	86	179	265	39,064	293	1,130	1,422	19,632
MAGNESIUM	2	4	5	720	6	9	15	32
MANGANESE	191	1,976	2,167	211,871	649	18,491	19,140	209,037
MERCURY	1,386	33	1,419	(67)	4,724	19	4,744	(1,645)
NICKEL	0	0	0	12	0	0	0	2
POTASSIUM	3	4	7	178	10	4	14	(4)
SODIUM	591	1,382	1,973	41,991	2,014	4,274	6,288	28,049
TITANIUM	4,668	10,958	15,628	92,375	15,914	49,101	65,015	219,000
ZINC	0	235	235	35	0	115	115	23
BOD	6	99	105	931	20	62	82	32
	7,222	9,666	16,888	51,301	24,617	7,641	32,259	39,370

SYNERGISTIC SCENARIO

U.S.A.

CAPITAL COSTS

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
 UPPER LAKES REFERENCE GROUP
 WASTELOADING SIMULATION MODEL

DATE 04/20/76

ECONOMIC SUMMARY
 CAPITAL INVESTMENT ONLY
 SYNERGISTIC SCENARIO
 1972 CONSTANT U.S. DOLLAR

U. S. A.

YEAR	LAKE SUPERIOR				LAKE HURON			
	INDUSTRIAL		MUNICIPAL		INDUSTRIAL		MUNICIPAL	
	ITMI11	ITMI13	MTMI11	MTMI13	ITMI11	ITMI13	MTMI11	MTMI13
1974.	\$871,782	\$871,782	\$189,434	\$189,433	\$3,984,530	\$3,984,530	\$788,087	\$788,087
1980.	\$765,253	\$932,143	\$167,197	\$1,887,386	\$4,066,271	\$4,866,618	\$775,236	\$2,752,644
1985.	\$809,938	\$876,798	\$211,365	\$391,810	\$4,556,371	\$4,932,495	\$961,819	\$1,296,356
1990.	\$887,626	\$980,215	\$282,302	\$1,600,030	\$5,088,934	\$5,619,765	\$1,262,683	\$3,045,874
2000.	\$1,077,534	\$1,238,253	\$175,781	\$1,174,150	\$6,162,991	\$7,082,230	\$888,197	\$2,361,517
2010.	\$1,206,524	\$1,442,786	\$177,595	\$499,014	\$7,062,568	\$8,445,560	\$900,030	\$1,080,616
2020.	\$1,158,283	\$1,441,345	\$270,782	\$640,446	\$7,589,498	\$9,444,220	\$1,319,843	\$1,993,437

SYNERGISTIC SCENARIO

U.S.A.

REGION LOADINGS

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

SYNERGISTIC SCENARIO

LOADINGS FOR 1974. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	155	23	178	1,544
NITROGEN	576	912	1,489	14,126
DISS SOLID	24,703	59,029	83,732	1,726,450
CHLORIDE	3,542	6,190	9,732	67,233
SILICA	247	6,673	6,920	150,015
SUSP SOLID	5,776	40,882	46,660	22,976,750
OIL	337	508	845	9,490
SULPHUR	7,040	4,370	11,410	95,613
NH3	567	184	750	1,763
PHENOL	0	23	23	107
CYANIDE	18	3	21	77
ALUMINUM	607	130	737	0
BORON	0	24	24	0
BROMINE	0	15	15	0
CAESIUM	2	3	4	14
CALCIUM	6,172	9,827	15,999	319,010
CHROMIUM	30	1	32	111
COPPER	48	3	50	570
FLUORIDE	76	22	98	2,413
IRON	1,012	172	1,184	33,069
LEAD	23	4	28	360
MAGNESIUM	1,822	2,587	4,407	181,551
MANGANESE	1,922	46	1,969	1,227
MERCURY	0	0	0	4
NICKEL	28	4	32	141
POTASSIUM	820	1,854	2,674	24,783
SODIUM	6,475	7,890	14,367	57,524
TITANIUM	0	132	132	0
ZINC	68	59	127	744
BOD	10,017	6,117	16,134	40,588

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	74	6	81	298
NITROGEN	267	309	576	5,621
DISS SOLID	11,112	16,465	27,576	697,150
CHLORIDE	1,592	796	2,388	41,975
SILICA	114	2,450	2,564	58,400
SUSP SOLID	2,909	12,340	15,249	215,350
OIL	196	198	395	9,198
SULPHUR	3,166	912	4,079	85,045
NH3	255	55	310	554
PHENOL	0	12	12	48
CYANIDE	8	0	8	14
ALUMINUM	273	66	338	0
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	2	19
CALCIUM	2,775	3,026	5,801	165
CHROMIUM	14	0	14	70
COPPER	22	1	23	71
FLUORIDE	34	2	36	1,756
IRON	468	27	496	7,410
LEAD	11	1	12	394
MAGNESIUM	819	1,076	1,895	34,456
MANGANESE	864	15	880	137
MERCURY	0	0	0	8
NICKEL	13	1	14	77
POTASSIUM	368	629	998	18,907
SODIUM	2,912	2,553	5,465	39,055
TITANIUM	0	68	68	0
ZINC	31	30	60	269
BOD	4,504	2,838	7,341	17,301

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	4	27	42 191
NITROGEN	77	121	197	2,125
DISS SOLID	3,042	8,860	11,902	378,735
CHLORIDE	437	395	832	22,211
SILICA	33	12	44	20,089
SUSP SOLID	979	3,340	4,325	28,395
OIL	83	212	295	5,337
SULPHUR	867	887	1,754	30,420
NH3	70	28	98	170
PHENOL	0	12	12	170
CYANIDE	2	0	3	0
ALUMINUM	75	66	140	0
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	760	2,102	2,863	110,066
CHROMIUM	4	0	5	0
COPPER	5	0	6	6
FLUORIDE	9	2	12	449
IRON	135	30	165	609
LEAD	3	0	3	20
MAGNESIUM	224	169	394	33,177
MANGANESE	237	1	238	27
MERCURY	0	0	0	0
NICKEL	4	0	4	11
POTASSIUM	101	53	154	2,681
SODIUM	798	2,230	3,028	15,214
TITANIUM	0	68	68	0
ZINC	8	28	36	39
BOO	1,235	2,538	3,773	7,915

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	355	104	459	963 2207
NITROGEN	1,538	3,344	4,882	27,095
DISS SOLID	78,445	576,301	654,747	3,795,678
CHLORIDE	11,473	116,555	128,030	449,679
SILICA	652	798	1,451	76,467
SUSP SOLID	15,577	538,448	554,025	661,290
OIL	1,201	648	1,849	26,061
SULPHUR	22,447	35,519	57,966	448,730
NHS	1,906	960	2,867	2,138
PHENOL	1	7	8	83
CYANIDE	61	14	75	2
ALUMINUM	2,043	129	2,172	0
BORON	0	1,714	1,714	0
BROMINE	0	1,045	1,045	0
CADMIUM	6	1	7	15
CALCIUM	20,767	96,623	117,390	605,029
CHROMIUM	125	1	126	6
COPPER	116	1	117	49
FLUORIDE	256	90	346	2,484
IRON	2,889	952	3,841	21,606
LEAD	59	7	67	68
MAGNESIUM	5,900	12,167	18,068	175,181
MANGANESE	6,468	18	6,486	308
MERCURY	0	0	0	2
NICKEL	92	4	95	70
POTASSIUM	2,758	3,133	5,890	25,124
SODIUM	21,788	33,187	54,975	196,774
TITANIUM	0	24	24	0
ZINC	192	32	223	170
BOD	33,703	4,415	38,119	41,088

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

SYNERGISTIC SCENARIO

LOADINGS FOR 1980. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	133	22	155	1,520
NITROGEN	551	836	1,387	14,024
DISS SOLID	25,038	54,284	79,322	1,722,040
CHLORIDE	3,624	5,807	9,431	66,932
SILICA	229	5,786	6,015	149,109
SUSP SOLID	5,255	37,726	42,981	22,973,072
OIL	338	475	814	9,459
SULPHUR	7,150	4,021	11,171	95,374
NH3	657	164	821	1,833
PHENOL	0	23	23	106
CYANIDE	21	2	23	79
ALUMINUM	704	126	830	93
BORON	0	27	27	3
BROMINE	0	16	16	2
CADMIUM	2	3	4	14
CALCIUM	7,155	9,124	16,279	319,290
CHROMIUM	34	1	35	115
COPPER	43	3	46	564
FLUORIDE	88	19	107	2,422
IRON	969	151	1,121	33,007
LEAD	22	4	25	357
MAGNESIUM	1,864	2,295	4,159	181,302
MANGANESE	2,228	40	2,269	1,526
MERCURY	0	0	0	4
NICKEL	29	4	33	141
POTASSIUM	950	1,625	2,575	24,684
SODIUM	7,507	7,384	14,891	58,048
TITANIUM	0	128	128	(4)
ZINC	65	57	122	739
BOD	11,613	5,843	17,456	41,908

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	70	7	77	294
NITROGEN	275	311	588	5,632
DISS SOLID	12,065	15,242	27,308	696,882
CHLORIDE	1,743	739	2,482	42,069
SILICA	115	2,075	2,191	58,026
SUSP SOLID	2,873	11,434	14,306	214,407
OIL	206	202	408	9,212
SULPHUR	3,444	894	4,338	85,305
NH3	311	55	365	611
PHENOL	0	12	12	49
CYANIDE	10	0	10	15
ALUMINUM	332	68	401	62
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	2	19
CALCIUM	3,380	2,723	6,103	466
CHROMIUM	17	0	17	73
COPPER	22	1	23	70
FLUORIDE	41	2	44	1,763
IRON	484	28	512	7,425
LEAD	11	1	12	394
MAGNESIUM	896	940	1,837	34,398
MANGANESE	1,053	14	1,066	323
MERCURY	0	0	0	8
NICKEL	14	1	15	78
POTASSIUM	449	545	994	18,904
SODIUM	3,546	2,597	6,142	39,733
TITANIUM	0	70	70	3
ZINC	32	31	62	271
BOD	5,485	2,945	8,430	18,390

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	4	27	43 192
NITROGEN	84	124	208	2,136
DISS SOLID	3,421	8,863	12,284	379,118
CHLORIDE	493	367	860	22,260
SILICA	35	12	47	20,092
SUSP SOLID	1,014	3,455	4,469	28,539
OIL	86	218	303	5,345
SULPHUR	976	899	1,876	30,542
NHS	85	29	113	185
PHENOL	0	12	12	171
CYANIDE	3	0	3	1
ALUMINUM	90	68	158	18
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	917	2,166	3,083	110,287
CHROMIUM	5	0	5	1
COPPER	6	0	6	7
FLUORIDE	12	2	14	451
IRON	147	31	176	621
LEAD	3	0	4	20
MAGNESIUM	254	166	419	33,202
MANGANESE	285	1	286	77
MERCURY	0	0	0	0
NICKEL	4	0	4	12
POTASSIUM	122	53	176	2,703
SODIUM	962	2,318	3,281	15,467
TITANIUM	0	70	70	3
ZINC	9	29	38	40
BOD	1,489	2,645	4,134	8,276

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	353	105	458	962 2206
NITROGEN	1,669	3,324	4,992	27,205
DISS SOLID	87,178	598,894	686,072	3,827,003
CHLORIDE	12,800	121,459	134,258	455,908
SILICA	689	702	1,392	76,408
SUSP SOLID	15,939	565,431	581,370	688,636
OIL	1,255	598	1,852	26,065
SULPHUR	24,965	36,133	61,098	451,861
NH3	2,312	953	3,265	2,537
PHENOL	1	7	8	83
CYANIDE	75	12	86	14
ALUMINUM	2,478	137	2,615	443
BORON	0	1,814	1,815	101
BROMINE	0	1,106	1,106	61
CADMIUM	7	1	8	15
CALCIUM	25,187	101,034	126,221	613,860
CHROMIUM	142	1	143	24
COPPER	121	1	122	54
FLUORIDE	310	82	392	2,531
IRON	3,112	929	4,040	21,805
LEAD	63	7	70	71
MAGNESIUM	6,583	12,848	19,430	176,544
MANGANESE	7,845	15	7,861	1,682
MERCURY	0	0	1	2
NICKEL	103	4	105	80
POTASSIUM	3,344	3,158	6,502	25,736
SODIUM	26,426	33,712	60,137	201,937
TITANIUM	0	27	27	2
ZINC	209	31	239	185
BOD	40,877	4,311	45,188	48,156

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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SYNERGISTIC SCENARIO

LOADINGS FOR 1985. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	122	22	144	1,509
NITROGEN	517	808	1,326	13,963
DISS SOLID	23,962	53,688	77,649	1,720,367
CHLORIDE	3,472	5,872	9,345	66,846
SILICA	214	5,434	5,648	148,743
SUSP SOLID	4,740	36,221	40,962	22,971,052
OIL	289	486	776	9,420
SULPHUR	6,844	4,106	10,949	95,153
NH3	634	158	791	1,804
PHENOL	0	23	23	107
CYANIDE	21	2	23	78
ALUMINUM	679	129	808	71
BORON	0	27	27	2
BROMINE	0	16	16	1
CAESIUM	2	3	4	13
CALCIUM	6,905	8,895	15,799	318,810
CHROMIUM	32	1	33	113
COPPER	40	3	43	562
FLUORIDE	85	19	104	2,419
IRON	913	153	1,066	32,952
LEAD	21	4	24	356
MAGNESIUM	1,786	2,167	3,953	181,096
MANGANESE	2,150	39	2,189	1,446
MERCURY	0	0	0	4
NICKEL	28	4	32	140
POTASSIUM	917	1,549	2,466	24,575
SODIUM	7,244	7,559	14,803	57,961
TITANIUM	0	131	131	(1)
ZINC	62	58	120	737
BOD	11,205	5,917	17,123	41,575

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	65	7	72	289
NITROGEN	264	316	579	5,624
DISS SOLID	11,800	14,866	26,666	696,240
CHLORIDE	1,707	715	2,422	42,008
SILICA	110	1,863	1,973	57,809
SUSP SOLID	2,630	11,043	13,674	213,774
OIL	180	217	397	9,200
SULPHUR	3,369	922	4,290	85,257
NHS	307	57	363	608
PHENOL	0	13	13	49
CYANIDE	10	0	10	15
ALUMINUM	329	75	403	65
BORON	0	0	0	0
BROMINE	0	0	0	0
CAESIUM	1	1	2	19
CALCIUM	3,341	2,602	5,943	305
CHROMIUM	16	1	17	72
COPPER	21	1	22	69
FLUORIDE	41	2	43	1,762
IRON	464	29	493	7,407
LEAD	10	1	11	393
MAGNESIUM	877	871	1,750	34,311
MANGANESE	1,040	12	1,052	310
MERCURY	0	0	0	8
NICKEL	14	1	14	77
POTASSIUM	444	500	943	18,853
SODIUM	3,505	2,777	6,283	39,874
TITANIUM	0	77	77	9
ZINC	31	32	64	273
BOD	5,422	3,177	8,599	18,558

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	22	4	26	42 19/
NITROGEN	81	131	213	2,141
DISS SOLID	3,456	9,260	12,717	379,551
CHLORIDE	500	399	898	22,278
SILICA	34	13	47	20,092
SUSP SOLID	945	3,657	4,602	28,671
OIL	77	230	309	5,350
SULPHUR	986	946	1,932	30,598
NH3	86	31	117	189
PHENOL	0	13	13	171
CYANIDE	3	0	3	1
ALUMINUM	93	73	166	25
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	942	2,300	3,242	110,445
CHROMIUM	5	1	5	1
COPPER	6	0	6	7
FLUORIDE	12	3	14	451
IRON	143	32	176	620
LEAD	3	0	4	20
MAGNESIUM	257	169	427	33,209
MANGANESE	293	1	294	84
MERCURY	0	0	0	0
NICKEL	4	0	4	12
POTASSIUM	125	56	181	2,709
SODIUM	988	2,470	3,459	15,645
TITANIUM	0	76	76	7
ZINC	9	31	40	42
BOD	1,529	2,822	4,351	8,493

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

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REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	325	113	438	
NITROGEN	1,616	3,513	5,129	
DISS SOLID	87,372	652,227	739,599	27,342
CHLORIDE	12,856	132,468	145,324	3,880,530
SILICA	665	742	1,408	466,973
SUSP SOLID	14,657	615,565	630,222	76,424
OIL	1,124	625	1,750	737,488
SULPHUR	25,032	39,146	64,178	25,962
NH3	2,340	1,002	3,342	454,942
PHENOL	1	7	8	2,613
CYANIDE	76	12	87	83
ALUMINUM	2,507	149	2,656	14
BORON	0	1,985	1,985	484
BROMINE	0	1,211	1,211	271
CADMIUM	7	1	8	166
CALCIUM	25,488	109,733	135,221	15
CHROMIUM	143	1	144	622,860
COPPER	117	1	118	24
FLUORIDE	313	85	398	49
IRON	3,040	983	4,023	2,537
LEAD	61	7	69	21,788
MAGNESIUM	6,611	14,035	20,646	69
MANGANESE	7,939	16	7,956	177,759
MERCURY	0	0	1	1,777
NICKEL	103	4	106	2
POTASSIUM	3,385	3,409	6,793	81
SODIUM	26,742	36,589	63,331	26,027
TITANIUM	0	28	28	205,131
ZINC	205	31	238	4
BOO	41,367	4,478	45,844	185
				48,813

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ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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SYNERGISTIC SCENARIO

LOADINGS FOR 1990. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	94	22	115	1,481
NITROGEN	439	780	1,220	13,857
DISS SOLID	20,202	53,272	73,475	1,716,193
CHLORIDE	2,942	5,963	8,906	66,407
SILICA	173	5,117	5,289	148,384
SUSP SOLID	3,830	34,718	38,548	22,968,639
OIL	260	498	758	9,402
SULPHUR	5,776	4,216	9,991	94,194
NH3	636	151	787	1,800
PHENOL	0	23	23	107
CYANIDE	21	2	23	78
ALUMINUM	681	132	814	77
BORON	0	26	26	2
BROMINE	0	16	16	1
CADMIUM	2	2	4	13
CALCIUM	6,927	8,662	15,590	318,600
CHROMIUM	30	1	31	111
COPPER	32	3	34	553
FLUORIDE	86	20	105	2,420
IRON	751	157	907	32,792
LEAD	16	4	20	352
MAGNESIUM	1,513	2,047	3,560	180,703
MANGANESE	2,157	37	2,194	1,453
MERCURY	0	0	0	4
NICKEL	23	4	27	136
POTASSIUM	920	1,483	2,403	24,512
SODIUM	7,268	7,760	15,027	58,185
TITANIUM	0	134	134	3
ZINC	50	58	110	727
BOD	11,243	5,981	17,224	41,678

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	53	7	60	277
NITROGEN	235	316	551	5,596
DISS SOLID	10,449	14,519	24,967	694,541
CHLORIDE	1,518	688	2,206	41,792
SILICA	94	1,670	1,764	57,600
SUSP SOLID	2,249	10,661	12,910	213,011
OIL	166	231	397	9,201
SULPHUR	2,985	949	3,935	84,902
NH3	318	57	374	620
PHENOL	0	14	14	50
CYANIDE	10	0	11	16
ALUMINUM	340	81	421	83
BORON	0	0	0	0
BROMINE	0	0	0	0
CAESIUM	1	1	2	19
CALCIUM	3,460	2,498	5,957	320
CHROMIUM	15	1	16	71
COPPER	17	1	18	67
FLUORIDE	42	2	45	1,764
IRON	402	31	433	7,347
LEAD	9	1	10	392
MAGNESIUM	780	807	1,589	34,150
MANGANESE	1,077	11	1,088	346
MERCURY	0	0	0	8
NICKEL	12	1	14	77
POTASSIUM	459	459	918	18,827
SODIUM	3,630	2,967	6,597	40,188
TITANIUM	0	84	84	16
ZINC	27	35	62	271
BOD	5,615	3,411	9,025	18,985

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	21	4	25	41 190
NITROGEN	81	130	220	2,147
DISS SOLID	3,431	9,608	13,039	379,873
CHLORIDE	497	408	904	22,284
SILICA	33	14	47	20,092
SUSP SOLID	912	3,828	4,739	28,809
OIL	77	242	319	5,359
SULPHUR	980	906	1,966	30,632
NH3	96	32	129	201
PHENOL	0	14	14	172
CYANIDE	3	0	4	1
ALUMINUM	104	77	181	40
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	1,053	2,421	3,474	110,678
CHROMIUM	5	1	6	1
COPPER	6	0	6	6
FLUORIDE	13	3	15	453
IRON	140	33	174	618
LEAD	3	0	4	20
MAGNESIUM	256	172	427	33,210
MANGANESE	328	1	329	118
MERCURY	0	0	0	0
NICKEL	4	0	4	12
POTASSIUM	140	58	198	2,725
SODIUM	1,104	2,602	3,706	15,892
TITANIUM	0	79	79	12
ZINC	9	32	41	44
BOD	1,708	2,976	4,684	8,827

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1970. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	297	122	419	922
NITROGEN	1,553	3,696	5,249	2,166
DISS SOLID	78,058	705,826	783,883	27,462
CHLORIDE	11,474	143,528	155,002	3,924,815
SILICA	605	794	1,399	476,651
SUSP SOLID	13,481	664,906	678,388	76,415
OIL	1,058	658	1,715	785,653
SULPHUR	22,359	42,239	64,597	25,928
NH3	2,465	1,046	3,511	455,361
PHENOL	1	7	9	2,782
CYANIDE	79	12	91	84
ALUMINUM	2,642	160	2,802	18
BORON	0	2,153	2,154	630
BROMINE	0	1,312	1,312	439
CADMIUM	6	1	7	268
CALCIUM	26,852	118,346	145,200	14
CHROMIUM	128	1	129	632,839
COPPER	106	1	107	9
FLUORIDE	330	88	419	39
IRON	2,748	1,038	3,785	2,557
LEAD	56	8	64	21,550
MAGNESIUM	5,900	15,200	21,109	64
MANGANESE	8,364	18	8,382	178,223
MERCURY	0	0	1	2,203
NICKEL	92	4	95	2
POTASSIUM	3,566	3,668	7,233	70
SODIUM	28,174	39,559	67,732	26,467
TITANIUM	0	30	30	209,531
ZINC	185	32	217	4
BOD	43,581	4,627	48,208	164
				51,177

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SYNERGISTIC SCENARIO

LOADINGS FOR 2000. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	41	22	63	1,428
NITROGEN	266	740	1,005	13,642
DISS SOLID	12,410	52,821	65,231	1,707,949
CHLORIDE	1,829	6,146	7,975	65,476
SILICA	93	4,604	4,696	147,791
SUSP SOLID	1,897	32,953	34,851	22,964,942
OIL	148	513	661	9,306
SULPHUR	3,557	4,354	7,911	92,114
NHS	517	142	658	1,671
PHENOL	0	24	24	108
CYANIDE	16	2	18	74
ALUMINUM	553	137	689	(47)
BORON	0	27	27	3
BROMINE	0	16	16	2
CADMIUM	1	2	3	12
CALCIUM	5,623	8,383	14,005	317,016
CHROMIUM	21	1	22	102
COPPER	16	2	18	536
FLUORIDE	69	21	90	2,405
IRON	425	158	583	32,468
LEAD	9	4	13	344
MAGNESIUM	940	1,870	2,811	179,953
MANGANESE	1,751	34	1,786	1,043
MERCURY	0	0	0	4
NICKEL	14	4	18	127
POTASSIUM	747	1,373	2,120	24,230
SODIUM	5,899	8,032	13,932	57,090
TITANIUM	0	140	140	7
ZINC	29	60	89	706
BOO	9,125	6,090	15,216	39,669

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION
LOADINGS FOR 2000, IN METRIC TONNES

DATE 05/11/76

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION
LOADINGS FOR 2000, IN METRIC TONNES

DATE 05/11/76

CANADA

MUNICIPAL

REGION 2 SOUTHERN LAKE SUPERIOR

CALIBRATED TOTAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	26	14,713	14,739	14,739
NITROGEN	149	8	157	157
DISS SOLID	6,786	1,321	8,107	8,107
CHLORIDE	996	14,213	15,209	15,209
SILICA	53	651	704	704
SUSP SOLID	1,200	1,409	2,609	2,609
OIL	97	10,279	10,376	10,376
SULPHUR	1,943	261	2,204	2,204
NH3	270	1,011	1,281	1,281
PHENOL	0	59	59	59
CYANIDE	9	16	25	25
ALUMINIUM	289	0	289	289
BORON	0	94	94	94
BROMINE	0	0	0	0
CADMIUM	1	0	1	1
CALCIUM	1	1	2	2
CHROMIUM	2,941	2,392	5,333	5,333
COPPER	11	1	12	12
FLUORIDE	9	1	10	10
IRON	36	2	38	38
LEAD	242	34	276	276
MAGNESIUM	4	1	5	5
MANGANESE	512	721	1,233	1,233
MERCURY	916	9	925	925
NICKEL	0	0	0	0
POTASSIUM	8	1	9	9
SODIUM	391	403	794	794
TITANIUM	3,086	3,352	6,438	6,438
ZINC	0	96	96	96
BOD	16	40	56	56
	4,774	3,875	8,649	8,649

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	12	5	17	33 182
NITROGEN	57	149	206	2,134
DISS SOLID CHLORIDE	2,426	10,179	12,605	379,439
SILICA	354	422	776	22,155
SUSP SOLID	22	14	36	20,081
OIL	548	4,113	4,660	28,730
SULPHUR	47	261	308	5,349
NH3	694	1,055	1,749	30,415
PHENOL	87	34	122	194
CYANIDE	0	14	14	173
ALUMINUM	3	0	3	1
BORON	94	84	177	37
BROMINE	0	0	0	0
CADMIUM	0	0	0	0
CALCIUM	0	0	0	3
CHROMIUM	954	2,645	3,599	110,003
COPPER	4	1	4	0
FLUORIDE	4	0	4	4
IRON	12	3	14	451
LEAD	94	36	129	573
MAGNESIUM	2	0	2	19
MANGANESE	182	174	356	33,138
MERCURY	297	1	298	87
NICKEL	0	0	0	0
POTASSIUM	3	0	4	10
SODIUM	127	61	188	2,716
TITANIUM	1,001	2,825	3,826	16,012
ZINC	0	86	86	19
BOD	6	35	41	44
	1,549	3,239	4,787	8,931

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	183	136	319	823 2067
NITROGEN	1,147	3,995	5,142	27,355
DISS SOLID	53,334	803,261	856,595	3,997,526
CHLORIDE	7,852	163,687	171,539	493,189
SILICA	401	857	1,257	76,274
SUSP SOLID	8,394	755,932	764,327	871,592
OIL	659	697	1,356	25,569
SULPHUR	15,282	47,665	62,947	453,710
NH3	2,201	1,113	3,314	2,585
PHENOL	1	8	9	84
CYANIDE	71	11	82	9
ALUMINUM	2,357	181	2,539	367
HORON	0	2,467	2,460	753
BROMINE	0	1,504	1,504	459
CAURIUM	4	1	5	13
CALCIUM	23,967	134,331	158,298	645,937
CHROMIUM	87	1	88	(31)
COPPER	70	1	71	4
FLUORIDE	294	91	385	2,525
IRON	1,840	1,120	2,960	20,725
LEAD	37	9	46	47
MAGNESIUM	4,038	17,393	21,432	178,545
MANGANESE	7,465	19	7,484	1,306
MERCURY	0	0	1	2
NICKEL	63	4	67	41
POTASSIUM	3,182	4,112	7,294	26,528
SODIUM	25,146	44,733	69,879	211,677
TITANIUM	0	32	32	7
ZINC	125	32	157	104
BOD	38,898	4,825	43,722	46,691

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SYNERGISTIC SCENARIO

LOADINGS FOR 2010. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	17	21	38	1,403
NITROGEN	158	696	853	13,490
DISS SOLID	6,037	51,076	57,113	1,699,831
CHLORIDE	891	6,097	6,988	64,489
SILICA	43	4,123	4,166	147,261
SUSP SOLID	805	31,376	32,181	22,962,272
OIL	66	506	571	9,216
SULPHUR	1,731	4,279	6,009	90,212
NH3	392	131	523	1,536
PHENOL	0	24	24	108
CYANIDE	13	2	14	70
ALUMINUM	419	137	556	(181)
BORON	0	29	29	4
BROMINE	0	18	18	3
CADMIUM	1	2	3	11
CALCIUM	4,264	8,048	12,312	315,323
CHROMIUM	10	1	11	91
COPPER	8	2	10	528
FLUORIDE	52	20	72	2,387
IRON	203	152	356	32,241
LEAD	4	4	7	339
MAGNESIUM	458	1,712	2,170	179,313
MANGANESE	1,328	32	1,359	617
MERCURY	0	0	0	4
NICKEL	7	4	11	119
POTASSIUM	566	1,256	1,823	23,933
SODIUM	4,474	7,931	12,406	55,563
TITANIUM	0	140	140	7
ZINC	14	59	74	691
BOD	6,921	6,004	12,925	37,378

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	11	8	19	236
NITROGEN	90	323	413	5,458
DISS SOLID CHLORIDE	3,421	13,883	17,303	686,877
SILICA	504	614	1,118	40,704
SUSP SOLID	26	1,231	1,256	57,092
OIL	513	10,003	10,516	210,617
SULPHUR	42	282	324	9,127
NH3	980	1,046	2,026	82,993
PHENOL	213	60	274	518
CYANIDE	0	18	18	54
ALUMINUM	7	0	7	13
BORON	229	103	330	(8)
BROMINE	0	0	0	0
CADMIUM	0	0	0	0
CALCIUM	0	1	1	18
CHROMIUM	2,320	2,318	4,638	(999)
COPPER	5	1	6	61
FLUORIDE	4	1	5	53
IRON	29	2	31	1,750
LEAD	118	36	155	7,069
MAGNESIUM	3	1	4	385
MANGANESE	259	654	913	33,475
MERCURY	723	8	731	(13)
NICKEL	0	0	0	8
POTASSIUM	4	1	5	68
SODIUM	308	365	673	18,583
TITANIUM	2,434	3,620	6,053	39,644
ZINC	0	105	105	39
BOD	8	44	52	261
	3,765	4,202	7,967	17,926

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	5	5	11	26 175
NITROGEN	33	153	186	2,114
DISS SOLID	1,251	10,346	11,597	378,430
CHLORIDE	184	421	604	21,984
SILICA	10	15	25	20,070
SUSP SOLID	230	4,220	4,450	28,520
OIL	20	268	288	5,330
SULPHUR	358	1,080	1,438	30,104
NH3	71	35	106	178
PHENOL	0	15	15	174
CYANIDE	3	0	3	0
ALUMINUM	77	86	163	23
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	776	2,759	3,534	110,738
CHROMIUM	2	1	3	(3)
COPPER	2	0	2	3
FLUORIDE	10	3	12	1,449
IRON	46	37	82	526
LEAD	1	0	1	18
MAGNESIUM	95	169	264	33,046
MANGANESE	241	1	242	32
MERCURY	0	0	0	0
NICKEL	2	0	2	9
POTASSIUM	103	62	166	2,693
SODIUM	814	2,920	3,733	15,919
TITANIUM	0	90	90	22
ZINC	3	37	40	42
BOD	1,258	3,353	4,612	8,755

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

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REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	82	143	224	228
NITROGEN	743	4,099	4,842	4,842
DISS SOLID	28,481	859,064	887,545	4,028,476
CHLORIDE	4,200	175,353	179,554	501,204
SILICA	207	848	1,055	76,071
SUSP SOLID	3,889	809,779	813,667	920,933
OIL	317	691	1,008	25,221
SULPHUR	8,164	50,490	58,654	449,417
NH3	1,833	1,130	2,964	2,235
PHENOL	1	8	9	84
CYANIDE	58	10	68	(4)
ALUMINUM	1,964	194	2,158	(14)
BORON	0	2,659	2,659	945
BROMINE	0	1,621	1,621	576
CADMIUM	3	1	4	11
CALCIUM	19,966	143,719	163,685	651,324
CHROMIUM	47	1	48	(72)
COPPER	36	1	37	(31)
FLUORIDE	246	88	334	2,472
IRON	961	1,142	2,103	19,868
LEAD	20	9	29	29
MAGNESIUM	2,160	18,716	20,877	177,990
MANGANESE	6,219	19	6,238	58
MERCURY	0	0	0	2
NICKEL	33	4	38	12
POTASSIUM	2,651	4,329	6,979	26,213
SODIUM	20,948	47,405	68,352	210,151
TITANIUM	0	32	32	8
ZINC	67	31	96	43
BOD	32,404	4,801	37,204	40,172

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

SYNERGISTIC SCENARIO

LOADINGS FOR 2020. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	19	22	1,387
NITROGEN	77	600	678	13,316
DISS SOLID	1,601	45,610	47,211	1,689,929
CHLORIDE	236	5,546	5,782	63,283
SILICA	12	3,463	3,476	146,570
SUSP SOLID	170	26,763	26,933	22,957,024
OIL	19	469	488	9,133
SULPHUR	459	3,974	4,432	88,636
NH3	260	115	375	1,389
PHENOL	0	23	23	106
CYANIDE	8	1	10	66
ALUMINUM	279	126	405	(332)
BORON	0	24	24	0
BROMINE	0	15	15	0
CADMIUM	0	2	2	11
CALCIUM	2,835	7,044	9,879	312,890
CHROMIUM	3	1	4	84
COPPER	2	2	4	522
FLUORIDE	35	19	54	2,369
IRON	55	143	197	32,083
LEAD	1	3	4	336
MAGNESIUM	122	1,437	1,559	178,702
MANGANESE	883	27	910	167
MERCURY	0	0	0	4
NICKEL	2	4	5	113
POTASSIUM	376	1,082	1,458	23,568
SODIUM	2,975	7,353	10,328	53,485
TITANIUM	0	129	129	(4)
ZINC	4	55	58	676
BOD	4,602	5,474	10,075	34,528

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

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REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	8	9	226
NITROGEN	44	295	339	5,385
DISS SOLID	912	12,449	13,361	682,934
CHLORIDE	134	526	660	40,247
SILICA	6	964	971	56,806
SUSP SOLID	97	8,894	8,991	209,093
OIL	11	280	291	9,094
SULPHUR	261	998	1,259	82,226
NH3	149	56	204	450
PHENOL	0	18	18	54
CYANIDE	4	0	4	11
ALUMINUM	158	104	262	(77)
BORON	0	0	0	0
BROMINE	0	0	0	0
CAESIUM	0	0	1	18
CALCIUM	1,615	2,067	3,682	(1,956)
CHROMIUM	2	1	2	58
COPPER	1	1	2	50
FLUORIDE	20	2	22	1,742
IRON	32	36	67	6,980
LEAD	1	1	1	383
MAGNESIUM	69	539	608	33,169
MANGANESE	503	6	509	(234)
MERCURY	0	0	0	8
NICKEL	1	1	2	65
POTASSIUM	214	300	514	18,423
SODIUM	1,694	3,606	5,300	38,891
TITANIUM	0	107	107	40
ZINC	2	44	46	256
BOD	2,620	4,192	6,813	16,772

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	1	5	5	
NITROGEN	15	144	159	2,087
DISS SOLID	323	9,733	10,056	376,889
CHLORIDE	48	392	439	21,819
SILICA	3	14	17	20,061
SUSP SOLID	34	3,968	4,002	28,072
OIL	4	254	257	5,299
SULPHUR	93	1,018	1,112	29,777
NH3	52	33	86	158
PHENOL	0	14	14	173
CYANIDE	2	0	2	(1)
ALUMINUM	57	82	139	(2)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	573	2,633	3,206	110,409
CHROMIUM	1	1	1	(4)
COPPER	0	0	0	1
FLUORIDE	7	2	9	446
IRON	11	34	45	490
LEAD	0	0	0	17
MAGNESIUM	24	155	179	32,962
MANGANESE	178	1	179	(32)
MERCURY	0	0	0	0
NICKEL	0	0	0	8
POTASSIUM	77	58	134	2,662
SODIUM	601	2,761	3,362	15,548
TITANIUM	0	85	85	17
ZINC	1	34	35	38
BOD	930	3,174	4,104	8,247

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

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REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	14	139	153	457 1901
NITROGEN	399	3,909	4,306	26,520
DISS SOLID	8,240	840,666	848,905	3,989,837
CHLORIDE	1,214	171,769	172,984	494,633
SILICA	61	820	881	75,897
SUSP SOLID	877	791,437	792,314	899,579
OIL	97	658	755	24,968
SULPHUR	2,362	49,285	51,646	442,410
NH3	1,340	1,072	2,412	1,683
PHENOL	1	7	8	83
CYANIDE	43	8	51	(22)
ALUMINUM	1,436	189	1,625	(547)
BORON	0	2,607	2,607	894
BROMINE	0	1,589	1,589	544
CADMIUM	1	1	2	9
CALCIUM	14,595	140,145	154,741	642,379
CHROMIUM	14	1	14	(105)
COPPER	11	1	12	(57)
FLUORIDE	179	83	262	2,401
IRON	282	1,095	1,376	19,141
LEAD	5	9	14	15
MAGNESIUM	625	18,338	18,961	176,075
MANGANESE	4,546	19	4,565	(1,615)
MERCURY	0	0	0	2
NICKEL	10	4	14	(12)
POTASSIUM	1,938	4,216	6,154	25,387
SODIUM	15,313	46,340	61,653	203,452
TITANIUM	0	31	31	5
ZINC	19	28	47	(6)
BOD	23,687	4,467	28,154	31,123

ZERO DISCHARGE

CANADA

LOADING SUMMARY

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LAKE LOADINGS SUMMARY. ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 1974. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	172	114	285	1,157	169	279	449	3,083
NITROGEN	1,123	2,388	3,510	97,911	1,436	10,412	11,848	20,913
DISS SOLID	19,828	440,561	460,388	3,012,698	24,949	717,772	742,720	3,604,189
CHLORIDE	2,705	2,784	5,489	233,666	3,487	75,352	78,838	227,591
SILICA	411	2,379	2,790	153,461	453	27,478	27,930	89,975
SUSP SOLID	3,263	29,286	32,549	307,265	4,549	55,407	59,955	211,113
OIL	144	177,183	177,327	0	526	184,631	185,158	0
SULPHUR	2,254	6,411	8,664	310,542	2,849	65,388	68,237	609,923
NHS	767	34,075	34,842	6,650	1,627	21,405	23,033	1,246
PHENOL	1	189	190	364	2	201	203	121
CYANIDE	16	19	35	990	34	31	65	263
ALUMINIUM	541	681	1,222	26,145	1,149	266	1,415	3,569
BORON	0	23	23	0	0	1,061	1,061	0
BROMINE	0	14	14	0	0	646	646	0
CADMIUM	0	1	1	273	0	14	14	541
CALCIUM	2,255	12,454	14,710	179,069	4,787	95,373	100,160	3,223,463
CHROMIUM	1	13	14	848	1	99	101	322
COPPER	5	16	22	345,088	5	14	19	2,076
FLUORIDE	68	61	129	2,537	144	377	521	5,406
IRON	83	1,346	1,429	12,500	98	3,034	3,133	10,272
LEAD	4	3	7	1,382	4	30	34	2,263
MAGNESIUM	677	1,557	2,233	132,139	871	16,736	17,609	162,988
MANGANESE	6	21	27	5,760	14	264	277	1,288
MERCURY	0	0	0	4	0	1	1	2
NICKEL	1	58	58	1,493	1	95	96	3,374
POTASSIUM	370	1,267	1,636	75,574	785	12,180	12,965	32,922
SODIUM	1,894	24,394	26,287	146,840	4,021	75,789	79,810	199,102
TITANIUM	0	703	703	0	0	208	208	0
ZINC	9	59	68	498	10	89	99	2,150
BOB	5,863	99,001	104,864	171,469	12,446	40,567	53,013	62,000

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LAKE LOADINGS SUMMARY, ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 1980, IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	126	122	248	1,120	179	296	475	3,109
NITROGEN	1,026	2,513	3,539	97,940	1,617	10,565	12,182	21,247
DISS SOLID	22,078	480,002	502,079	3,054,389	27,709	789,784	817,493	3,678,962
CHLORIDE	3,082	2,976	6,057	234,234	3,878	82,763	86,641	235,395
SILICA	367	2,012	2,979	153,650	491	30,246	30,738	92,783
SUSP SOLID	2,682	31,506	34,248	308,964	4,848	57,474	62,322	213,479
OIL	158	200,233	200,390	23,063	566	208,644	209,210	24,052
SULPHUR	2,521	6,957	9,478	311,357	3,165	72,093	75,258	616,944
NH3	949	37,002	37,951	9,760	1,971	23,282	25,254	3,467
PHENOL	1	213	214	388	3	226	229	147
CYANIDE	20	22	42	996	41	34	76	275
ALUMINIUM	670	740	1,409	26,332	1,391	291	1,682	3,836
BORON	0	26	26	3	0	1,175	1,175	113
BROMINE	0	15	15	2	0	715	715	69
CADMIUM	0	1	1	273	0	16	16	543
CALCIUM	2,793	13,492	16,285	180,644	5,798	104,121	109,919	3,233,221
CHROMIUM	1	14	14	849	1	108	110	331
COPPER	4	17	22	345,088	5	15	21	2,078
FLUORIDE	84	69	153	2,561	174	419	593	5,478
IRON	80	1,511	1,591	12,663	108	3,388	3,495	10,634
LEAD	4	3	6	1,381	4	33	38	2,266
MAGNESIUM	770	1,701	2,471	132,377	969	18,412	19,382	164,762
MANGANESE	8	23	31	5,764	16	292	308	1,319
MERCURY	0	0	0	4	0	1	1	2
NICKEL	1	64	66	1,500	1	106	107	3,386
POTASSIUM	458	1,381	1,839	75,776	950	13,329	14,280	34,237
SODIUM	2,345	26,508	28,854	149,405	4,870	83,704	88,574	207,865
TITANIUM	0	763	763	60	0	226	226	18
ZINC	9	66	74	503	11	98	110	2,160
BOU	7,261	107,457	114,719	181,324	15,074	43,508	58,582	67,569

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LAKE LOADINGS SUMMARY, ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 1985. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	91	0	91	961	36	0	36	2,669
NITROGEN	895	0	895	95,296	1,062	0	1,062	10,128
DISS SOLID	21,575	0	21,575	2,573,885	23,900	0	23,900	2,885,359
CHLORIDE	3,029	0	3,029	231,206	3,421	0	3,421	152,174
SILICA	318	0	318	150,909	272	0	272	62,317
SUSP SOLID	1,670	0	1,670	276,385	1,048	0	1,048	152,204
OIL	5	0	5	(177,323)	57	0	57	(185,101)
SULPHUR	2,466	0	2,466	304,345	2,743	0	2,743	544,429
NIC	949	0	949	(27,243)	1,985	0	1,985	(19,802)
PHENOL	1	0	1	175	3	0	3	(80)
CYANIDE	20	0	20	974	42	0	42	240
ALUMINUM	670	0	670	25,592	1,401	0	1,401	3,555
BORON	0	0	0	(23)	0	0	0	(1,061)
BROMINE	0	0	0	(14)	0	0	0	(646)
CADMIUM	0	0	0	272	0	0	0	526
CALCIUM	2,789	0	2,789	167,148	5,839	0	5,839	3,129,143
CHROMIUM	1	0	1	835	1	0	1	223
COPPER	4	0	4	345,070	3	0	3	2,061
FLUORIDE	84	0	84	2,492	176	0	176	5,061
IRON	72	0	72	11,143	69	0	69	7,209
LEAD	4	0	4	1,378	3	0	3	2,231
MAGNESIUM	757	0	757	130,664	855	0	855	146,235
MANGANESE	8	0	8	5,741	16	0	16	1,027
MERCURY	0	0	0	4	0	0	0	1
NICKEL	1	0	1	1,436	1	0	1	3,280
POTASSIUM	457	0	457	74,395	958	0	958	20,914
SODIUM	2,343	0	2,343	122,894	4,905	0	4,905	124,196
TITANIUM	0	0	0	(703)	0	0	0	(208)
ZINC	8	0	8	437	8	0	8	2,058
BOD	7,250	0	7,250	73,857	15,183	0	15,183	24,170

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LAKE LOADINGS SUMMARY, ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 1990, IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	32	0	32	904	36	0	36	2,669
NITROGEN	637	0	637	95,038	1,066	0	1,066	10,131
DISS SOLID	18,870	0	18,870	2,571,180	23,944	0	23,944	2,885,412
CHLORIDE	2,699	0	2,699	230,876	3,427	0	3,427	152,180
SILICA	212	0	212	150,883	272	0	272	62,318
SUSP SOLID	798	0	798	275,514	1,050	0	1,050	152,208
OIL	10	0	10	(177,317)	57	0	57	(185,101)
SULPHUR	2,165	0	2,165	304,043	2,748	0	2,748	544,434
HNO ₃	944	0	944	(27,248)	1,994	0	1,994	(19,793)
PHENOL	1	0	1	175	3	0	3	(80)
CYANIDE	20	0	20	974	42	0	42	240
ALUMINUM	666	0	666	25,590	1,408	0	1,408	3,561
BORON	0	0	0	(23)	0	0	0	(1,061)
BROMINE	0	0	0	(14)	0	0	0	(646)
CADMIUM	0	0	0	272	0	0	0	526
CALCIUM	2,777	0	2,777	167,135	5,865	0	5,865	3,129,168
CHROMIUM	1	0	1	835	1	0	1	223
COPPER	3	0	3	345,069	3	0	3	2,061
FLUORIDE	84	0	84	2,491	176	0	176	5,061
IRON	55	0	55	11,126	70	0	70	7,209
LEAD	3	0	3	1,377	3	0	3	2,231
MAGNESIUM	675	0	675	130,581	857	0	857	146,237
MANGANESE	8	0	8	5,741	16	0	16	1,027
MERCURY	0	0	0	4	0	0	0	1
NICKEL	1	0	1	1,436	1	0	1	3,280
POTASSIUM	455	0	455	74,392	962	0	962	20,919
SODIUM	2,332	0	2,332	122,884	4,927	0	4,927	124,218
TITANIUM	0	0	0	(703)	0	0	0	(208)
ZINC	6	0	6	436	8	0	8	2,058
BOD	7,219	0	7,219	73,824	15,249	0	15,249	24,236

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY. ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 2000. IN METRIC TONNES.

PARAMETER	LAKE SUPERIOR				LAKE HURON			
	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	18	0	18	888	29	0	29	2,662
NITROGEN	477	0	477	94,878	905	0	905	9,971
DISS SOLID CHLORIDE	12,584	0	12,584	2,564,894	18,219	0	18,219	2,879,687
SILICA	1,804	0	1,804	229,981	2,605	0	2,605	151,358
SUSP SOLID	139	0	139	150,809	212	0	212	62,257
OIL	502	0	502	275,218	856	0	856	152,013
SULPHUR	17	0	17	(177,310)	58	0	58	(185,100)
NHS	1,445	0	1,445	303,323	2,091	0	2,091	543,777
PHENOL	824	0	824	(27,367)	1,772	0	1,772	(20,015)
CYANIDE	1	0	1	175	2	0	2	(80)
ALUMINUM	17	0	17	971	38	0	38	236
BORON	581	0	581	25,505	1,251	0	1,251	3,405
BROMINE	0	0	0	(23)	0	0	0	(1,061)
CAESIUM	0	0	0	(14)	0	0	0	(646)
CALCIUM	0	0	0	272	0	0	0	526
CHROMIUM	2,424	0	2,424	166,783	5,212	0	5,212	3,128,515
COPPER	1	0	1	835	1	0	1	222
FLUORIDE	2	0	2	345,068	3	0	3	2,060
IRON	73	0	73	2,480	157	0	157	5,042
LEAD	36	0	36	11,107	54	0	54	7,194
MAGNESIUM	2	0	2	1,376	3	0	3	2,230
MANGANESE	451	0	451	130,357	652	0	652	146,031
MERCURY	7	0	7	5,740	14	0	14	1,025
NICKEL	0	0	0	4	0	0	0	1
POTASSIUM	1	0	1	1,436	1	0	1	3,280
SODIUM	398	0	398	74,335	855	0	855	20,812
TITANIUM	2,036	0	2,036	122,587	4,378	0	4,378	123,670
ZINC	0	0	0	(703)	0	0	0	(208)
BDU	4	0	4	433	6	0	6	2,057
	6,302	0	6,302	72,907	13,552	0	13,552	22,539

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

LAKE LOADINGS SUMMARY. ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 2010. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	12	0	12	882	20	0	20	2,653
NITROGEN	361	0	361	94,762	717	0	717	9,782
DISS SOLID CHLORIDE	7,430	0	7,430	2,559,740	10,889	0	10,889	2,872,357
SILICA	1,063	0	1,063	229,240	1,553	0	1,553	150,305
SUSP SOLID OIL	86	0	86	150,756	136	0	136	62,181
SULPHUR	344	0	344	275,060	616	0	616	151,773
NHS	23	0	23	(177,305)	61	0	61	(185,097)
PHENOL	852	0	852	302,731	1,248	0	1,248	542,935
CYANIDE	700	0	700	(27,491)	1,534	0	1,534	(20,254)
ALUMINUM	1	0	1	175	2	0	2	(80)
BORON	14	0	14	969	32	0	32	230
BROMINE	494	0	494	25,417	1,083	0	1,083	3,236
CADMIUM	0	0	0	(23)	0	0	0	(1,061)
CALCIUM	0	0	0	(14)	0	0	0	(646)
CHROMIUM	2,059	0	2,059	272	0	0	0	526
COPPER	0	0	0	835	1	0	1	222
FLOURIDE	1	0	1	345,067	2	0	2	2,059
IRON	62	0	62	2,470	135	0	135	5,020
LEAD	22	0	22	11,093	33	0	33	7,173
MAGNESIUM	1	0	1	1,375	2	0	2	2,229
MANGANESE	266	0	266	130,172	388	0	388	145,768
MERCURY	5	0	5	5,739	13	0	13	1,023
NICKEL	0	0	0	4	0	0	0	1
POTASSIUM	0	0	0	1,435	1	0	1	3,279
SODIUM	338	0	338	74,275	740	0	740	20,696
TITANIUM	1,730	0	1,730	122,281	3,790	0	3,790	123,081
ZINC	0	0	0	(703)	0	0	0	(208)
BOU	3	0	3	431	4	0	4	2,055
	5,354	0	5,354	71,960	11,730	0	11,730	20,716

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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LAKE LOADINGS SUMMARY, ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 2020, IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	5	0	5	877	11	0	11	2,644
NITROGEN	227	0	227	94,627	482	0	482	9,548
DISS SOLID CHLORIDE	2,985	0	2,985	2,555,295	4,971	0	4,971	2,866,439
SILICA	425	0	425	228,602	705	0	705	149,458
SUSP SOLID OIL	39	0	39	150,710	70	0	70	62,115
SULPHUR	187	0	187	274,902	374	0	374	151,531
IRIS	22	0	22	(177,306)	51	0	51	(185,107)
PHENOL	342	0	342	302,221	570	0	570	542,255
CYANIDE	501	0	501	(27,689)	1,120	0	1,120	(20,668)
ALUMINUM	1	0	1	175	1	0	1	(81)
BORON	11	0	11	965	23	0	23	222
BROMINE	354	0	354	25,277	790	0	790	2,944
CADMIUM	0	0	0	(23)	0	0	0	(1,061)
CALCIUM	0	0	0	(14)	0	0	0	(646)
CHROMIUM	1,475	0	1,475	165,834	3,293	0	3,293	3,126,596
COPPER	0	0	0	834	0	0	0	222
FLUORIDE	0	0	0	345,066	1	0	1	2,058
IRON	44	0	44	2,453	99	0	99	4,984
LEAD	10	0	10	11,081	16	0	16	7,156
MAGNESIUM	0	0	0	1,374	1	0	1	2,229
MANGANESE	106	0	106	130,012	176	0	176	145,556
MERCURY	4	0	4	5,737	9	0	9	1,020
NICKEL	0	0	0	4	0	0	0	1
POTASSIUM	0	0	0	1,435	0	0	0	3,279
SODIUM	242	0	242	74,179	540	0	540	20,497
TITANIUM	1,239	0	1,239	121,791	2,766	0	2,766	122,057
ZINC	0	0	0	(703)	0	0	0	(208)
BOL	1	0	1	430	2	0	2	2,052
	3,835	0	3,835	70,440	8,562	0	8,562	17,549

ZERO DISCHARGE

CANADA

CAPITAL COSTS

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
 UPPER LAKES REFERENCE GROUP
 WASTELOADING SIMULATION MODEL

DATE 04/20/76

ECONOMIC SUMMARY
 CAPITAL INVESTMENT ONLY
 ZERO LOADINGS, 1985 POLICY
 1961 CONSTANT DOLLARS

CANADA

YEAR	LAKE SUPERIOR				LAKE HURON			
	INDUSTRIAL		MUNICIPAL		INDUSTRIAL		MUNICIPAL	
	ITMI01	ITMI03	MTMI01	MTMI03	ITMI01	ITMI03	MTMI01	MTMI03
1974.	\$1,882,528	\$1,882,528	\$210,939	\$210,939	\$4,587,481	\$4,587,481	\$508,824	\$508,824
1980.	\$2,254,356	\$2,667,256	\$230,006	\$1,689,447	\$4,450,738	\$5,258,881	\$619,756	\$1,644,162
1985.	\$2,817,921	\$5,414,405,760	\$245,911	\$1,847,984	\$5,269,830	\$10,479,024,000	\$868,150	\$6,697,055
1990.	\$2,199,867	\$355,625,332	\$252,214	\$1,314,803	\$4,899,723	\$785,176,928	\$973,796	\$718,412
2000.	\$2,570,013	\$415,470,136	\$252,819	\$909,913	\$6,245,292	\$1,001,048,264	\$1,085,835	\$898,601
2010.	\$3,328,839	\$538,126,280	\$287,075	\$714,819	\$8,474,368	\$1,357,359,840	\$1,356,942	\$1,177,991
2020.	\$4,688,702	\$757,941,056	\$319,106	\$534,652	\$12,230,924	\$1,957,067,376	\$1,999,397	\$721,477

ZERO DISCHARGE

CANADA

REGION LOADINGS

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 1974. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	96	58	155	428
NITROGEN	615	1,289	1,903	3,434
DISS SOLID CHLORIDE	10,551	203,312	213,863	817,329
SILICA	1,439	1,251	2,689	40,227
SUSP SOLID	225	176	401	24,376
OIL	1,940	14,087	16,027	36,913
SULPHUR	116	1,697	1,814	0
NH3	1,199	3,079	4,278	82,629
PHENOL	408	16,302	16,709	475
CYANIDE	1	8	9	27
ALUMINUM	9	0	9	34
BORON	288	338	625	918
BROMINE	0	12	12	0
CADMIUM	0	7	7	0
CALCIUM	0	0	0	106
CHROMIUM	1,199	5,785	6,984	50,761
COPPER	0	7	7	92
FLUORIDE	3	7	11	150
IRON	36	5	41	868
LEAD	45	122	167	4,933
MAGNESIUM	3	1	4	336
MANGANESE	360	446	806	37,001
MERCURY	4	4	7	422
NICKEL	0	0	0	1
POTASSIUM	1	4	4	189
SODIUM	196	329	526	5,121
TITANIUM	1,007	11,633	12,641	50,419
ZINC	0	349	349	0
BOD	4	20	24	199
	3,118	48,382	51,500	113,599

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	33	35	239
NITROGEN	15	397	413	5,265
DISS SOLID	310	132,347	132,656	1,573,863
CHLORIDE	42	432	475	124,957
SILICA	5	1,211	1,217	72,748
SUSP SOLID	42	7,542	7,584	219,317
OIL	2	667	669	0
SULPHUR	35	1,638	1,673	102,667
NI3	12	11,489	11,501	202
PHENOL	0	5	5	109
CYANIDE	0	0	0	140
ALUMINUM	8	229	238	273
BROMINE	0	2	2	0
CADMIUM	0	1	1	0
CALCIUM	0	1	1	55
CHROMIUM	36	3,382	3,417	322
COPPER	0	2	2	123
FLUORIDE	0	1	1	134
IRON	1	2	4	735
LEAD	1	73	75	3,240
MAGNESIUM	0	1	1	357
MANGANESE	11	609	620	73,150
MERCURY	0	9	9	590
NICKEL	0	0	0	2
POTASSIUM	0	2	2	514
SODIUM	5	395	401	20,392
TITANIUM	30	7,754	7,785	77,136
ZINC	0	237	237	0
BOD	0	10	10	39
	93	32,391	32,483	41,218

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	6	6	79,412
DISS SOLID	0	3,569	3,569	402,178
CHLORIDE	0	115	115	9,735
SILICA	0	795	795	25,830
SUSP SOLID	0	58	58	7,291
OIL	0	194	194	0
SULPHUR	0	14	14	45,853
NH3	0	425	425	104
PHENOL	0	0	0	29
CYANIDE	0	0	0	61
ALUMINUM	0	2	2	167
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	0
CALCIUM	0	0	0	4
CHROMIUM	0	695	695	66,653
COPPER	0	0	0	578
FLUORIDE	0	0	0	40
IRON	0	0	0	394
LEAD	0	2	2	502
MAGNESIUM	0	0	0	40
MANGANESE	0	284	284	11,636
MERCURY	0	4	4	4,280
NICKEL	0	0	0	2
POTASSIUM	0	0	0	40
SODIUM	0	181	181	5,238
TITANIUM	0	145	145	6,919
ZINC	0	2	2	0
BOD	0	0	0	4
		213	213	184

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	73	23	95	425
NITROGEN	493	695	1,188	9,801
DISS SOLID CHLORIDE	8,968	101,334	110,301	219,328
SILICA	1,224	985	2,210	58,747
SUSP SOLID	181	197	378	30,507
OIL	1,279	7,600	8,879	43,744
SULPHUR	26	174,625	174,651	0
NH3	1,020	1,681	2,700	79,394
PHENOL	347	5,859	6,206	5,870
CYANIDE	0	175	176	200
ALUMINUM	7	19	26	753
BORON	245	113	357	24,787
BROMINE	0	11	11	0
CAESIUM	0	6	6	0
CADMIUM	0	0	0	108
CALCIUM	1,021	2,592	3,613	61,332
CHROMIUM	0	4	4	55
COPPER	3	7	10	344,764
FLUORIDE	31	54	85	540
IRON	36	1,150	1,186	3,825
LEAD	2	1	3	649
MAGNESIUM	306	216	522	10,353
MANGANESE	3	3	5	467
MERCURY	0	0	0	0
NICKEL	0	51	51	751
POTASSIUM	167	362	529	44,822
SODIUM	857	4,861	5,718	12,365
TITANIUM	0	116	116	0
ZINC	4	30	34	256
BOD	2,652	18,014	20,666	16,467

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	140	43	183	1,207
NITROGEN	895	1,326	2,220	3,622
DISS SOLID	15,748	267,624	283,372	485,448
CHLORIDE	2,182	4,846	7,027	42,492
SILICA	324	22,130	22,453	22,557
SUSP SOLID	3,695	11,018	14,713	48,783
OIL	437	115,975	116,411	0
SULPHUR	1,796	3,245	5,039	113,756
NH3	657	17,625	18,282	327
PHENOL	1	118	119	23
CYANIDE	14	13	26	52
ALUMINUM	464	159	623	504
BORON	0	65	65	0
BROMINE	0	40	40	0
CADMIUM	0	9	9	113
CALCIUM	1,931	25,430	27,362	61,444
CHROMIUM	1	7	8	57
COPPER	4	6	10	927
FLUORIDE	58	40	97	540
IRON	68	805	873	1,631
LEAD	3	1	4	682
MAGNESIUM	545	8,719	9,265	17,066
MANGANESE	5	137	142	437
MERCURY	0	0	0	0
NICKEL	1	43	44	398
POTASSIUM	317	5,435	5,752	5,689
SODIUM	1,623	9,593	11,216	22,008
TITANIUM	0	161	161	0
ZINC	6	35	42	284
BOD	5,021	24,002	29,023	18,511

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974, IN METRIC TONNES.

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REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	86	93	1,612
NITROGEN	304	5,826	6,130	10,397
DISS SOLID CHLORIDE	3,160	151,425	154,585	1,585,225
SILICA	448	8,543	8,991	78,767
SUSP SOLID	45	763	808	47,808
OIL	236	26,420	26,656	93,486
SULPHUR	32	55,229	55,262	0
NH3	362	11,101	11,462	236,357
PHENOL	705	2,291	2,994	752
CYANIDE	1	57	58	76
ALUMINUM	15	6	22	164
BORON	497	46	543	850
BROMINE	0	349	349	0
CADMIUM	0	213	213	0
CALCIUM	0	0	0	359
CHROMIUM	2,072	37,622	39,694	2,882,779
COPPER	0	76	76	180
FLUORIDE	1	4	5	899
IRON	62	42	104	3,868
LEAD	11	529	539	6,337
MAGNESIUM	1	3	3	1,174
MANGANESE	112	3,326	3,439	44,752
MERCURY	5	8	14	686
NICKEL	0	0	0	1
POTASSIUM	0	19	19	2,733
SODIUM	340	1,576	1,916	19,114
TITANIUM	1,741	9,118	10,858	57,197
ZINC	0	24	24	0
BOD	1	17	18	850
	5,386	9,171	14,558	25,470

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

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REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	150	173	264
NITROGEN	237	3,261	3,497	6,896
DISS SOLID	6,041	298,722	304,763	1,533,515
CHLORIDE	857	61,963	62,820	106,332
SILICA	84	4,585	4,668	19,610
SUSP SOLID	617	17,969	18,587	68,844
OIL	58	13,427	13,485	0
SULPHUR	692	51,043	51,736	259,810
NH3	266	1,490	1,757	167
PHENOL	0	26	27	23
CYANIDE	5	12	17	48
ALUMINUM	188	61	249	2,215
BORON	0	646	646	0
BROMINE	0	394	394	0
CADMIUM	0	5	5	68
CALCIUM	784	32,322	33,106	279,240
CHROMIUM	0	17	17	86
COPPER	1	3	4	251
FLUORIDE	23	295	319	998
IRON	20	1,700	1,720	2,304
LEAD	1	27	28	407
MAGNESIUM	214	4,691	4,905	101,171
MANGANESE	2	119	122	166
MERCURY	0	1	1	0
NICKEL	0	32	32	243
POTASSIUM	129	5,169	5,297	8,119
SODIUM	659	57,079	57,737	119,897
TITANIUM	0	23	23	0
ZINC	2	37	39	1,015
BUD	2,038	7,393	9,432	18,019

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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CANADA

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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 1980. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	63	62	125	399
NITROGEN	530	1,337	1,867	3,397
DISS SOLID	11,947	220,820	232,766	836,233
CHLORIDE	1,678	1,312	2,991	40,528
SILICA	190	189	379	24,354
SUSP SOLID	1,509	15,048	16,557	37,443
OIL	127	1,879	2,006	193
SULPHUR	1,365	3,327	4,693	83,044
NH3	513	17,685	18,197	1,963
PHENOL	1	9	10	27
CYANIDE	11	0	11	37
ALUMINUM	362	367	729	1,021
BORON	0	13	13	1
BROMINE	0	7	7	1
CADMIUM	0	0	0	106
CALCIUM	1,508	6,240	7,748	51,525
CHROMIUM	1	8	8	93
COPPER	2	8	10	149
FLUORIDE	45	5	51	878
IRON	42	131	175	4,941
LEAD	2	1	4	336
MAGNESIUM	419	485	904	37,100
MANGANESE	4	4	8	423
MERCURY	0	0	0	1
NICKEL	1	4	4	190
POTASSIUM	248	350	598	5,193
SODIUM	1,267	12,622	13,889	51,667
TITANIUM	0	379	379	30
ZINC	4	21	25	200
BOD	3,922	52,456	56,379	118,479

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1960. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	36	39	242
NITROGEN	16	430	446	5,299
DISS SOLID CHLORIDE	341	143,725	144,065	1,585,273
SILICA	48	471	518	125,000
SUSP SOLID	6	1,330	1,336	72,868
OIL	42	8,182	8,223	219,956
SULPHUR	2	728	730	61
NH3	39	1,778	1,816	102,811
PHENOL	14	12,476	12,491	1,192
CYANIDE	0	5	5	110
ALUMINUM	0	0	0	140
BORON	10	248	259	293
BROMINE	0	2	2	0
CADMIUM	0	1	1	0
CALCIUM	0	1	1	55
CHROMIUM	43	3,686	3,728	633
COPPER	0	2	2	123
FLUORIDE	0	1	1	134
IRON	1	3	4	735
LEAD	0	79	81	3,246
MAGNESIUM	0	1	1	357
MANGANESE	12	668	679	73,210
MERCURY	0	10	10	591
NICKEL	0	0	0	2
POTASSIUM	0	2	2	514
SODIUM	7	433	439	20,431
TITANIUM	36	8,419	8,455	77,806
ZINC	0	257	257	20
BOD	0	11	11	40
	112	35,153	35,266	44,001

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	1	1	64
NITROGEN	0	7	7	79,412
DISS SOLID CHLORIDE	0	3,911	3,911	402,520
SILICA	0	127	127	9,746
SUSP SOLID	0	874	874	25,909
OIL	0	64	64	7,296
SULPHUR	0	219	219	25
NH3	0	14	14	45,854
PHENOL	0	465	465	145
CYANIDE	0	0	0	29
ALUMINIUM	0	0	0	61
BORON	0	2	2	168
BROMINE	0	0	0	0
CADMIUM	0	0	0	0
CALCIUM	0	0	0	4
CHROMIUM	0	764	764	66,722
COPPER	0	0	0	578
FLUORIDE	0	0	0	40
IRON	0	0	0	394
LEAD	0	2	2	502
MAGNESIUM	0	0	0	40
MANGANESE	0	313	313	11,664
MERCURY	0	5	5	4,280
NICKEL	0	0	0	2
POTASSIUM	0	0	0	40
SODIUM	0	199	199	5,256
TITANIUM	0	158	158	6,934
ZINC	0	2	2	0
BOD	0	1	1	4
	0	231	231	203

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	61	23	85	415
NITROGEN	480	739	1,220	9,832
DISS SOLID	9,790	111,547	121,337	230,364
CHLORIDE	1,356	1,066	2,422	58,960
SILICA	172	219	390	30,519
SUSP SOLID	1,130	8,273	9,403	44,268
OIL	29	197,406	197,435	22,784
SULPHUR	1,116	1,838	2,954	79,649
NH3	422	6,375	6,797	6,461
PHENOL	1	198	198	222
CYANIDE	9	22	31	758
ALUMINUM	298	122	420	24,850
BORON	0	12	12	1
BROMINE	0	7	7	1
CADMIUM	0	0	0	108
CALCIUM	1,241	2,804	4,045	61,764
CHROMIUM	0	4	4	55
COPPER	2	8	11	344,764
FLUORIDE	37	61	98	553
IRON	36	1,298	1,335	3,974
LEAD	2	1	3	649
MAGNESIUM	339	235	574	10,405
MANGANESE	4	4	6	468
MERCURY	0	0	0	0
NICKEL	1	58	58	757
POTASSIUM	203	400	603	44,896
SODIUM	1,042	5,309	6,352	12,999
TITANIUM	0	126	126	10
ZINC	4	33	38	259
BOD	3,227	19,616	22,842	18,643

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	147	47	194	1,217
NITROGEN	999	1,379	2,378	3,779
DISS SOLID	17,964	293,376	311,341	513,417
CHLORIDE	2,497	5,264	7,761	43,225
SILICA	354	24,325	24,679	24,782
SUSP SOLID	3,930	11,785	15,715	49,785
OIL	465	131,090	131,555	15,143
SULPHUR	2,049	3,536	5,585	114,303
NH3	816	19,267	20,084	2,129
PHENOL	1	133	134	38
CYANIDE	17	14	32	57
ALUMINUM	576	174	750	631
BORON	0	72	72	7
BROMINE	0	44	44	4
CADMIUM	0	10	10	114
CALCIUM	2,402	27,866	30,267	64,350
CHROMIUM	1	8	9	58
COPPER	4	7	11	928
FLUORIDE	72	44	116	559
IRON	76	907	982	1,741
LEAD	4	1	4	683
MAGNESIUM	625	9,582	10,207	18,007
MANGANESE	6	150	157	451
MERCURY	0	0	0	0
NICKEL	1	49	49	403
POTASSIUM	1,394	5,968	6,362	6,298
SODIUM	2,018	10,481	12,497	23,290
TITANIUM	0	175	175	14
ZINC	7	39	47	289
BOD	6,244	26,048	32,292	21,779

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	86	95	1,614
NITROGEN	350	5,842	6,192	10,459
DISS SOLID	3,020	166,036	169,057	1,599,696
CHLORIDE	427	8,968	9,394	79,171
SILICA	46	836	882	47,882
SUSP SOLID	261	26,841	27,102	93,932
OIL	40	62,427	62,466	7,204
SULPHUR	346	12,046	12,391	237,286
NH3	833	2,426	3,259	1,017
PHENOL	1	64	65	83
CYANIDE	18	7	25	167
ALUMINUM	589	50	638	945
BORON	0	387	387	38
BROMINE	0	236	236	23
CADMIUM	0	0	1	359
CALCIUM	2,452	40,774	43,227	2,886,313
CHROMIUM	0	82	82	187
COPPER	1	5	5	899
FLUORIDE	74	47	121	3,884
IRON	11	593	604	6,401
LEAD	1	3	4	1,174
MAGNESIUM	107	3,650	3,757	45,069
MANGANESE	7	9	16	688
MERCURY	0	0	0	1
NICKEL	0	22	22	2,736
POTASSIUM	402	1,664	2,066	19,265
SODIUM	2,059	9,974	12,033	58,372
TITANIUM	0	27	27	2
ZINC	1	19	20	851
BOD	6,375	9,569	15,944	26,856

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	24	163	187	278
NITROGEN	267	3,344	3,612	7,010
DISS SOLID	6,724	330,372	337,096	1,565,849
CHLORIDE	955	68,531	69,486	112,999
SILICA	92	5,085	5,177	20,119
SUSP SOLID	656	18,849	19,505	69,763
OIL	60	15,128	15,188	1,704
SULPHUR	770	56,510	57,280	265,355
NH3	321	1,589	1,911	320
PHENOL	0	30	30	25
CYANIDE	7	13	20	49
ALUMINIUM	227	67	293	2,260
BORON	0	715	715	69
BROMINE	0	437	437	42
CAESIUM	0	5	5	68
CALCIUM	944	35,480	36,424	282,560
CHROMIUM	0	18	19	86
COPPER	1	3	4	251
FLUORIDE	28	328	356	1,035
IRON	22	1,887	1,910	2,494
LEAD	1	30	31	410
MAGNESIUM	239	5,179	5,418	101,685
MANGANESE	3	132	135	179
MERCURY	0	1	1	0
NICKEL	0	36	36	247
POTASSIUM	155	5,697	5,852	8,674
SODIUM	793	63,249	64,043	126,203
TITANIUM	0	24	24	2
ZINC	3	40	43	1,020
SD	2,455	7,891	10,347	18,934

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

UPPER LAKES REFERENCE GROUP
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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 1985. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	32	0	32	306
NITROGEN	417	0	417	1,948
DISS SOLID	11,517	0	11,517	614,983
CHLORIDE	1,634	0	1,634	39,172
SILICA	148	0	148	24,122
SUSP SOLID	663	0	663	21,548
OIL	3	0	3	(1,811)
SULPHUR	1,319	0	1,319	79,670
COBALT	511	0	511	(15,723)
CYANIDE	1	0	1	18
ALUMINIUM	11	0	11	36
BORON	361	0	361	655
BROMINE	0	0	0	(12)
CADMIUM	0	0	0	(7)
CALCIUM	1,504	0	1,504	106
CHROMIUM	1	0	1	48,281
COPPER	2	0	2	85
FLUORIDE	45	0	45	141
IRON	35	0	35	872
LEAD	2	0	2	4,002
MAGNESIUM	409	0	409	334
MANGANESE	4	0	4	36,603
MERCURY	0	0	0	419
NICKEL	1	0	1	1
POTASSIUM	247	0	247	185
SODIUM	1,264	0	1,264	4,042
TITANIUM	0	0	0	30,042
ZINC	0	0	0	(349)
BOD	3,911	0	3,911	179
		0		66,011

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	0	2	205
NITROGEN	15	0	15	4,867
DISS SOLID	333	0	333	1,441,541
CHLORIDE	47	0	47	124,529
SILICA	5	0	5	71,537
SUSP SOLID	30	0	30	211,763
OIL	0	0	0	(669)
SULPHUR	38	0	38	101,032
NH3	14	0	14	(11,285)
PHENOL	0	0	0	104
CYANIDE	0	0	0	140
ALUMINUM	10	0	10	45
BORON	0	0	0	(2)
BROMINE	0	0	0	(1)
CADMIUM	0	0	0	54
CALCIUM	43	0	43	(3,053)
CHROMIUM	0	0	0	122
COPPER	0	0	0	133
FLUORIDE	1	0	1	733
IRON	1	0	1	3,166
LEAD	0	0	0	356
MAGNESIUM	12	0	12	72,541
MANGANESE	0	0	0	581
MERCURY	0	0	0	2
NICKEL	0	0	0	512
POTASSIUM	7	0	7	19,999
SODIUM	36	0	36	69,387
TITANIUM	0	0	0	(237)
ZINC	0	0	0	29
BOD	112	0	112	8,847

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	0	0	63
NITROGEN	0	0	0	79,405
DISS SOLID	0	0	0	398,609
CHLORIDE	0	0	0	9,619
SILICA	0	0	0	25,035
SUSP SOLID	0	0	0	7,232
OIL	0	0	0	(194)
SULPHUR	0	0	0	45,840
NH3	0	0	0	(321)
PHENOL	0	0	0	28
CYANIDE	0	0	0	61
ALUMINUM	0	0	0	167
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	4
CALCIUM	0	0	0	65,958
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	393
IRON	0	0	0	500
LEAD	0	0	0	40
MAGNESIUM	0	0	0	11,351
MANGANESE	0	0	0	4,275
MERCURY	0	0	0	2
NICKEL	0	0	0	39
POTASSIUM	0	0	0	5,057
SODIUM	0	0	0	6,775
TITANIUM	0	0	0	(2)
ZINC	0	0	0	4
BOD	0	0	0	(30)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	57	0	57	387
NITROGEN	464	0	464	9,077
DISS SOLID	9,725	0	9,725	118,751
CHLORIDE	1,348	0	1,348	57,886
SILICA	166	0	166	30,294
SUSP SOLID	976	0	976	35,842
OIL	2	0	2	(174,649)
SULPHUR	1,109	0	1,109	77,803
NH3	422	0	422	86
PHENOL	1	0	1	24
CYANIDE	9	0	9	736
ALUMINUM	298	0	298	24,728
BORON	0	0	0	(11)
BROMINE	0	0	0	(6)
CADMIUM	0	0	0	108
CALCIUM	1,242	0	1,242	58,962
CHROMIUM	0	0	0	51
COPPER	2	0	2	344,756
FLUORIDE	37	0	37	493
IRON	35	0	35	2,674
LEAD	2	0	2	648
MAGNESIUM	338	0	338	10,168
MANGANESE	4	0	4	465
MERCURY	0	0	0	0
NICKEL	0	0	0	699
POTASSIUM	203	0	203	44,496
SODIUM	1,043	0	1,043	7,690
TITANIUM	0	0	0	(116)
ZINC	4	0	4	226
BOD	3,228	0	3,228	(971)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE. ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	20	0	20	1,043
NITROGEN	506	0	506	1,907
DISS SOLID	14,583	0	14,583	216,659
CHLORIDE	2,091	0	2,091	37,555
SILICA	158	0	158	261
SUSP SOLID	554	0	554	34,625
OIL	14	0	14	(116,398)
SULPHUR	1,674	0	1,674	110,391
NH3	829	0	829	(17,126)
PHENOL	1	0	1	(95)
CYANIDE	17	0	17	43
ALUMINIUM	585	0	585	466
BORON	0	0	0	(65)
BROMINE	0	0	0	(40)
CADMIUM	0	0	0	104
CALCIUM	2,437	0	2,437	36,519
CHROMIUM	1	0	1	49
COPPER	2	0	2	919
FLUORIDE	73	0	73	516
IRON	41	0	41	799
LEAD	2	0	2	680
MAGNESIUM	523	0	523	8,324
MANGANESE	7	0	7	301
MERCURY	0	0	0	0
NICKEL	1	0	1	355
POTASSIUM	400	0	400	337
SODIUM	2,047	0	2,047	12,839
TITANIUM	0	0	0	(161)
ZINC	4	0	4	248
BOD	6,336	0	6,336	(4,176)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	0	7	1,526
NITROGEN	354	0	354	4,621
DISS SOLID	3,053	0	3,053	1,433,693
CHLORIDE	431	0	431	70,207
SILICA	46	0	46	47,047
SUSP SOLID	264	0	264	67,094
OIL	40	0	40	(55,221)
SULPHUR	349	0	349	225,244
NH3	842	0	842	(1,400)
PHENOL	1	0	1	19
CYANIDE	18	0	18	160
ALUMINIUM	595	0	595	902
BORON	0	0	0	(349)
BROMINE	0	0	0	(213)
CADMIUM	0	0	0	358
CALCIUM	2,478	0	2,478	2,845,563
CHROMIUM	0	0	0	105
COPPER	1	0	1	895
FLUORIDE	75	0	75	3,838
IRON	11	0	11	5,808
LEAD	1	0	1	1,171
MAGNESIUM	108	0	108	41,420
MANGANESE	7	0	7	679
MERCURY	0	0	0	1
NICKEL	0	0	0	2,714
POTASSIUM	407	0	407	17,604
SODIUM	2,082	0	2,082	48,420
TITANIUM	0	0	0	(24)
ZINC	1	0	1	832
BOD	6,443	0	6,443	17,356

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	8	0	8	99
NITROGEN	202	0	202	3,600
DISS SOLID	6,265	0	6,265	1,235,018
CHLORIDE	899	0	899	44,410
SILICA	68	0	68	15,009
SUSP SOLID	229	0	229	50,486
OIL	4	0	4	(13,481)
SULPHUR	719	0	719	208,794
NH3	314	0	314	(1,276)
PHENOL	0	0	0	(4)
CYANIDE	6	0	6	37
ALUMINUM	222	0	222	2,188
BORON	0	0	0	(646)
BROMINE	0	0	0	(394)
CADMIUM	0	0	0	63
CALCIUM	924	0	924	247,059
CHROMIUM	0	0	0	68
COPPER	1	0	1	248
FLUORIDE	28	0	28	706
IRON	18	0	18	602
LEAD	1	0	1	380
MAGNESIUM	225	0	225	96,491
MANGANESE	3	0	3	47
MERCURY	0	0	0	0
NICKEL	0	0	0	211
POTASSIUM	151	0	151	2,974
SODIUM	777	0	777	62,937
TITANIUM	0	0	0	(23)
ZINC	2	0	2	978
BOD	2,404	0	2,404	10,991

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 1990. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	14	0	14	287
NITROGEN	327	0	327	1,857
DISS SOLID	10,133	0	10,133	613,600
CHLORIDE	1,454	0	1,454	38,992
SILICA	109	0	109	24,083
SUSP SOLID	371	0	371	21,255
OIL	5	0	5	(1,808)
SULPHUR	1,164	0	1,164	79,514
NHS	509	0	509	(15,726)
PHENOL	1	0	1	18
CYANIDE	11	0	11	36
ALUMINUM	359	0	359	651
BORON	0	0	0	(12)
BROMINE	0	0	0	(7)
CADMIUM	0	0	0	106
CALCIUM	1,496	0	1,496	45,272
CHROMIUM	1	0	1	85
COPPER	1	0	1	141
FLUORIDE	45	0	45	872
IRON	29	0	29	4,795
LEAD	1	0	1	333
MAGNESIUM	364	0	364	36,558
MANGANESE	4	0	4	419
MERCURY	0	0	0	1
NICKEL	1	0	1	185
POTASSIUM	246	0	246	4,841
SODIUM	1,256	0	1,256	39,035
TITANIUM	0	0	0	(349)
ZINC	4	0	4	178
BOD	3,888	0	3,888	65,987

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

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REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	1	0	1	204
NITROGEN	10	0	10	4,063
DISS SOLID	289	0	289	1,441,497
CHLORIDE	41	0	41	124,523
SILICA	4	0	4	71,536
SUSP SOLID	14	0	14	211,748
OIL	0	0	0	(669)
SULPHUR	33	0	33	101,027
NH3	14	0	14	(11,285)
PHENOL	0	0	0	104
CYANIDE	0	0	0	140
ALUMINUM	10	0	10	45
BORON	0	0	0	(2)
BROMINE	0	0	0	(1)
CADMIUM	0	0	0	54
CALCIUM	42	0	42	(3,053)
CHROMIUM	0	0	0	122
COPPER	0	0	0	133
FLUORIDE	1	0	1	733
IRON	1	0	1	3,166
LEAD	0	0	0	356
MAGNESIUM	10	0	10	72,540
MANGANESE	0	0	0	581
MERCURY	0	0	0	2
NICKEL	0	0	0	512
POTASSIUM	7	0	7	19,999
SODIUM	36	0	36	69,387
TITANIUM	0	0	0	(237)
ZINC	0	0	0	29
TOTAL	111	0	111	8,845

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	0	0	63
NITROGEN	0	0	0	79,405
DISS SOLID	0	0	0	398,609
CHLORIDE	0	0	0	9,619
SILICA	0	0	0	25,035
SUSP SOLID	0	0	0	7,232
OIL	0	0	0	(194)
SULPHUR	0	0	0	45,840
NH3	0	0	0	(321)
PHENOL	0	0	0	28
CYANIDE	0	0	0	61
ALUMINUM	0	0	0	167
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	4
CALCIUM	0	0	0	65,958
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	393
IRON	0	0	0	500
LEAD	0	0	0	40
MAGNESIUM	0	0	0	11,351
MANGANESE	0	0	0	4,275
MERCURY	0	0	0	2
NICKEL	0	0	0	39
POTASSIUM	0	0	0	5,057
SODIUM	0	0	0	6,775
TITANIUM	0	0	0	(2)
ZINC	0	0	0	4
BOD	0	0	0	(30)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE. ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	19	0	19	348
NITROGEN	301	0	301	8,913
DISS SOLID	8,447	0	8,447	117,474
CHLORIDE	1,204	0	1,204	57,742
SILICA	101	0	101	30,230
SUSP SOLID	414	0	414	35,279
OIL	4	0	4	(174,647)
SULPHUR	968	0	968	77,664
NH3	421	0	421	85
PHENOL	1	0	1	24
CYANIDE	9	0	9	736
ALUMINUM	297	0	297	24,728
BORON	0	0	0	(11)
BROMINE	0	0	0	(6)
CAESIUM	0	0	0	108
CALCIUM	1,238	0	1,238	58,958
CHROMIUM	0	0	0	51
COPPER	1	0	1	344,755
FLUORIDE	37	0	37	493
IRON	25	0	25	2,664
LEAD	1	0	1	647
MAGNESIUM	301	0	301	10,132
MANGANESE	4	0	4	465
MERCURY	0	0	0	0
NICKEL	0	0	0	699
POTASSIUM	203	0	203	44,496
SODIUM	1,040	0	1,040	7,688
TITANIUM	0	0	0	(116)
ZINC	3	0	3	225
BGD	3,220	0	3,220	(979)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	20	0	20	1,044
NITROGEN	512	0	512	1,913
DISS SOLID	14,752	0	14,752	216,828
CHLORIDE	2,115	0	2,115	37,579
SILICA	160	0	160	263
SUSP SOLID	561	0	561	34,631
OIL	14	0	14	(116,398)
SULPHUR	1,694	0	1,694	110,411
NH3	838	0	838	(17,117)
PHENOL	1	0	1	(95)
CYANIDE	18	0	18	43
ALUMINIUM	591	0	591	473
BORON	0	0	0	(65)
BROMINE	0	0	0	(40)
CADMIUM	0	0	0	104
CALCIUM	2,465	0	2,465	36,548
CHROMIUM	1	0	1	49
COPPER	2	0	2	919
FLUORIDE	74	0	74	517
IRON	42	0	42	800
LEAD	2	0	2	680
MAGNESIUM	529	0	529	8,330
MANGANESE	7	0	7	301
MERCURY	0	0	0	0
NICKEL	1	0	1	355
POTASSIUM	404	0	404	341
SODIUM	2,071	0	2,071	12,864
TITANIUM	0	0	0	(161)
ZINC	5	0	5	248
BOD	6,410	0	6,410	(4,102)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7			
NITROGEN	356	0	7	1,527
DISS SOLID	3,076	0	356	4,623
CHLORIDE	435	0	3,076	1,433,716
SILICA	47	0	435	70,211
SUSP SOLID	266	0	47	47,047
OIL	40	0	266	67,096
SULPHUR	352	0	40	(55,221)
NH3	849	0	352	225,247
PHENOL	1	0	849	(1,393)
CYANIDE	18	0	1	19
ALUMINIUM	599	0	18	161
BORON	0	0	599	906
BROMINE	0	0	0	(349)
CADMIUM	0	0	0	(213)
CALCIUM	2,498	0	0	358
CHROMIUM	0	0	2,498	2,845,583
COPPER	1	0	0	105
FLUORIDE	75	0	1	895
IRON	11	0	75	3,839
LEAD	1	0	11	5,808
MAGNESIUM	109	0	1	1,171
MANGANESE	7	0	109	41,421
MERCURY	0	0	7	679
NICKEL	0	0	0	1
POTASSIUM	410	0	0	2,714
SODIUM	2,098	0	410	17,608
TITANIUM	0	0	2,098	48,436
ZINC	1	0	0	(24)
BOD	6,493	0	1	832
			6,493	17,405

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	8	0	8	99
NITROGEN	197	0	197	3,595
DISS SOLID CHLORIDE	6,115	0	6,115	1,234,868
SILICA	877	0	877	44,389
SUSP SOLID	66	0	66	15,008
OIL	223	0	223	50,481
SULPHUR	4	0	4	(13,482)
NH3	702	0	702	208,777
PHENOL	307	0	307	(1,283)
CYANIDE	0	0	0	(4)
ALUMINUM	6	0	6	37
BORON	217	0	217	2,183
BROMINE	0	0	0	(646)
CADMIUM	0	0	0	(394)
CALCIUM	0	0	0	63
CHROMIUM	903	0	903	247,037
COPPER	0	0	0	68
FLUORIDE	1	0	1	248
IRON	27	0	27	706
LEAD	17	0	17	601
MAGNESIUM	1	0	1	380
MANGANESE	220	0	220	96,485
MERCURY	3	0	3	47
NICKEL	0	0	0	0
POTASSIUM	0	0	0	211
SODIUM	148	0	148	2,970
TITANIUM	758	0	758	62,918
ZINC	0	0	0	(23)
BOD	2	0	2	978
	2,346	0	2,346	10,933

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 2000. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	10	0	10	283
NITROGEN	257	0	257	1,787
DISS SOLID	6,757	0	6,757	610,224
CHLORIDE	968	0	968	38,506
SILICA	75	0	75	24,049
SUSP SOLID	270	0	270	21,155
OIL	9	0	9	(1,805)
SULPHUR	776	0	776	79,126
NHS	443	0	443	(15,792)
PHENOL	1	0	1	18
CYANIDE	9	0	9	35
ALUMINIUM	312	0	312	605
BORON	0	0	0	(12)
BROMINE	0	0	0	(7)
CADMIUM	0	0	0	106
CALCIUM	1,301	0	1,301	45,078
CHROMIUM	0	0	0	85
COPPER	1	0	1	140
FLUORIDE	39	0	39	866
IRON	20	0	20	4,786
LEAD	1	0	1	333
MAGNESIUM	242	0	242	36,437
MANGANESE	4	0	4	419
MERCURY	0	0	0	1
NICKEL	0	0	0	185
POTASSIUM	213	0	213	4,809
SODIUM	1,094	0	1,094	38,872
TITANIUM	0	0	0	(349)
ZINC	3	0	3	177
BOD	3,384	0	3,384	65,483

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000, IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	0	0	204
NITROGEN	7	0	7	4,859
DISS SOLID	190	0	190	1,441,398
CHLORIDE	27	0	27	124,510
SILICA	2	0	2	71,534
SUSP SOLID	7	0	7	211,740
OIL	0	0	0	(669)
SULPHUR	22	0	22	101,016
NH3	13	0	13	(11,287)
PHENOL	0	0	0	104
CYANIDE	0	0	0	140
ALUMINUM	9	0	9	43
BORON	0	0	0	(2)
BROMINE	0	0	0	(1)
CADMIUM	0	0	0	54
CALCIUM	37	0	37	(3,059)
CHROMIUM	0	0	0	122
COPPER	0	0	0	133
FLUORIDE	1	0	1	733
IRON	1	0	1	3,166
LEAD	0	0	0	356
MAGNESIUM	7	0	7	72,536
MANGANESE	0	0	0	581
MERCURY	0	0	0	2
NICKEL	0	0	0	512
POTASSIUM	6	0	6	19,997
SODIUM	31	0	31	69,382
TITANIUM	0	0	0	(237)
ZINC	0	0	0	29
BOD	95	0	95	8,831

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	0	0	63
NITROGEN	0	0	0	79,405
DISS SOLID	0	0	0	398,609
CHLORIDE	0	0	0	9,619
SILICA	0	0	0	25,035
SUSP SOLID	0	0	0	7,232
OIL	0	0	0	(194)
SULPHUR	0	0	0	45,840
NH3	0	0	0	(321)
PHENOL	0	0	0	28
CYANIDE	0	0	0	61
ALUMINUM	0	0	0	167
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	0
CALCIUM	0	0	0	4
CHROMIUM	0	0	0	65,958
COPPER	0	0	0	578
FLUORIDE	0	0	0	40
IRON	0	0	0	393
LEAD	0	0	0	500
MAGNESIUM	0	0	0	40
MANGANESE	0	0	0	11,351
MERCURY	0	0	0	4,275
NICKEL	0	0	0	2
POTASSIUM	0	0	0	39
SODIUM	0	0	0	5,057
TITANIUM	0	0	0	6,775
ZINC	0	0	0	(2)
BOD	0	0	0	4
				(30)

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000, IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	8	0	8	338
NITROGEN	213	0	213	8,826
DISS SOLID	5,637	0	5,637	114,663
CHLORIDE	807	0	807	57,345
SILICA	62	0	62	30,191
SUSP SOLID	225	0	225	35,090
OIL	8	0	8	(174,643)
SULPHUR	647	0	647	77,342
NH3	369	0	369	32
PHENOL	0	0	0	24
CYANIDE	8	0	8	735
ALUMINIUM	260	0	260	24,691
BORON	0	0	0	(11)
BROMINE	0	0	0	(6)
CADMIUM	0	0	0	108
CALCIUM	1,085	0	1,085	58,805
CHROMIUM	0	0	0	50
COPPER	1	0	1	344,755
FLUORIDE	32	0	32	489
IRON	16	0	16	2,655
LEAD	1	0	1	647
MAGNESIUM	202	0	202	10,033
MANGANESE	3	0	3	464
MERCURY	0	0	0	0
NICKEL	0	0	0	699
POTASSIUM	178	0	178	44,471
SODIUM	912	0	912	7,559
TITANIUM	0	0	0	(116)
ZINC	2	0	2	224
BOD	2,822	0	2,822	(1,377)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	16	0	16	1,040
NITROGEN	437	0	437	1,839
DISS SOLID	11,536	0	11,536	213,612
CHLORIDE	1,653	0	1,653	37,118
SILICA	127	0	127	230
SUSP SOLID	461	0	461	34,531
OIL	16	0	16	(116,395)
SULPHUR	1,324	0	1,324	110,041
NI3	755	0	755	(17,200)
PHENOL	1	0	1	(95)
CYANIDE	16	0	16	41
ALUMINIUM	534	0	534	414
BORON	0	0	0	(65)
BROMINE	0	0	0	(40)
CADMIUM	0	0	0	104
CALCIUM	2,222	0	2,222	36,305
CHROMIUM	1	0	1	49
COPPER	2	0	2	918
FLUORIDE	67	0	67	509
IRON	33	0	33	791
LEAD	2	0	2	680
MAGNESIUM	413	0	413	8,214
MANGANESE	6	0	6	301
MERCURY	0	0	0	0
NICKEL	1	0	1	355
POTASSIUM	365	0	365	302
SODIUM	1,867	0	1,867	12,659
TITANIUM	0	0	0	(161)
ZINC	4	0	4	247
BOD	5,777	0	5,777	(4,735)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	7	0	7	1,526
NITROGEN	319	0	319	4,585
DISS SOLID	2,751	0	2,751	1,433,391
CHLORIDE	389	0	389	70,165
SILICA	41	0	41	47,042
SUSP SOLID	238	0	238	67,068
OIL	36	0	36	(55,226)
SULPHUR	315	0	315	225,210
NH3	760	0	760	(1,482)
PHENOL	1	0	1	19
CYANIDE	16	0	16	158
ALUMINUM	536	0	536	843
BORON	0	0	0	(349)
BROMINE	0	0	0	(213)
CADMIUM	0	0	0	358
CALCIUM	2,233	0	2,233	2,845,319
CHROMIUM	0	0	0	105
COPPER	1	0	1	895
FLUORIDE	67	0	67	3,830
IRON	10	0	10	5,807
LEAD	0	0	0	1,171
MAGNESIUM	97	0	97	41,410
MANGANESE	6	0	6	678
MERCURY	0	0	0	1
NICKEL	0	0	0	2,714
POTASSIUM	366	0	366	17,564
SODIUM	1,876	0	1,876	48,215
TITANIUM	0	0	0	(24)
ZINC	1	0	1	832
BOD	5,806	0	5,806	16,718

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION:
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	5	0	5	96
NITROGEN	149	0	149	3,547
DISS SOLID	3,931	0	3,931	1,232,684
CHLORIDE	563	0	563	44,076
SILICA	43	0	43	14,985
SUSP SOLID	157	0	157	50,414
OIL	5	0	5	(13,479)
SULPHUR	451	0	451	208,526
NH3	257	0	257	(1,333)
PHENOL	0	0	0	(4)
CYANIDE	5	0	5	36
ALUMINIUM	182	0	182	2,147
BORON	0	0	0	(646)
BROMINE	0	0	0	(394)
CADMIUM	0	0	0	63
CALCIUM	757	0	757	246,092
CHROMIUM	0	0	0	68
COPPER	1	0	1	248
FLUORIDE	23	0	23	701
IRON	12	0	12	596
LEAD	1	0	1	380
MAGNESIUM	140	0	140	96,407
MANGANESE	2	0	2	47
MERCURY	0	0	0	0
NICKEL	0	0	0	211
POTASSIUM	124	0	124	2,947
SODIUM	636	0	636	62,797
TITANIUM	0	0	0	(23)
ZINC	1	0	1	977
BOD	1,968	0	1,968	10,555

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 2010. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	6	0	6	280
NITROGEN	194	0	194	1,724
DISS SOLID	3,978	0	3,978	607,444
CHLORIDE	569	0	569	38,107
SILICA	46	0	46	24,021
SUSP SOLID	185	0	185	21,069
OIL	12	0	12	(1,802)
SULPHUR	456	0	456	78,808
NH3	375	0	375	(15,860)
PHENOL	0	0	0	18
CYANIDE	8	0	8	33
ALUMINUM	265	0	265	557
BORON	0	0	0	(12)
BROMINE	0	0	0	(7)
CADMIUM	0	0	0	106
CALCIUM	1,103	0	1,103	44,879
CHROMIUM	0	0	0	85
COPPER	1	0	1	140
FLUORIDE	33	0	33	860
IRON	12	0	12	4,778
LEAD	1	0	1	332
MAGNESIUM	142	0	142	36,337
MANGANESE	3	0	3	418
MERCURY	0	0	0	1
NICKEL	0	0	0	185
POTASSIUM	181	0	181	4,776
SODIUM	926	0	926	38,704
TITANIUM	0	0	0	(349)
ZINC	2	0	2	176
BOD	2,867	0	2,867	64,966

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	0	0	203
NITROGEN	5	0	5	4,857
DISS SOLID	112	0	112	1,441,319
CHLORIDE	16	0	16	124,498
SILICA	1	0	1	71,533
SUSP SOLID	5	0	5	211,739
OIL	0	0	0	(669)
SULPHUR	13	0	13	101,006
NH3	11	0	11	(11,289)
PHENOL	0	0	0	104
CYANIDE	0	0	0	140
ALUMINUM	7	0	7	42
BORON	0	0	0	(2)
BROMINE	0	0	0	(1)
CADMIUM	0	0	0	54
CALCIUM	31	0	31	(3,065)
CHROMIUM	0	0	0	122
COPPER	0	0	0	133
FLUORIDE	1	0	1	733
IRON	0	0	0	3,165
LEAD	0	0	0	356
MAGNESIUM	4	0	4	72,534
MANGANESE	0	0	0	581
MERCURY	0	0	0	2
NICKEL	0	0	0	512
POTASSIUM	5	0	5	19,996
SODIUM	26	0	26	69,377
TITANIUM	0	0	0	(237)
ZINC	0	0	0	29
BOD	80	0	80	8,816

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

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PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	0	0	63
NITROGEN	0	0	0	79,405
DISS SOLID	0	0	0	398,609
CHLORIDE	0	0	0	9,619
SILICA	0	0	0	25,035
SUSP SOLID	0	0	0	7,232
OIL	0	0	0	(194)
SULPHUR	0	0	0	45,840
NH3	0	0	0	(321)
PHENOL	0	0	0	28
CYANIDE	0	0	0	61
ALUMINIUM	0	0	0	167
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	4
CALCIUM	0	0	0	65,958
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	393
IRON	0	0	0	500
LEAD	0	0	0	40
MAGNESIUM	0	0	0	11,351
MANGANESE	0	0	0	4,275
MERCURY	0	0	0	2
NICKEL	0	0	0	39
POTASSIUM	0	0	0	5,057
SODIUM	0	0	0	6,775
TITANIUM	0	0	0	(2)
ZINC	0	0	0	4
BOD	0	0	0	(30)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	5	0	5	336
NITROGEN	162	0	162	8,775
DISS SOLID	3,342	0	3,342	112,368
CHLORIDE	478	0	478	57,016
SILICA	39	0	39	30,168
SUSP SOLID	155	0	155	35,020
OIL	10	0	10	(174,641)
SULPHUR	383	0	383	77,078
NH3	315	0	315	(22)
PHENOL	0	0	0	24
CYANIDE	6	0	6	734
ALUMINIUM	222	0	222	24,652
BORON	0	0	0	(11)
BROMINE	0	0	0	(6)
CADMIUM	0	0	0	108
CALCIUM	926	0	926	58,646
CHROMIUM	0	0	0	50
COPPER	0	0	0	344,754
FLUORIDE	28	0	28	483
IRON	10	0	10	2,649
LEAD	0	0	0	646
MAGNESIUM	120	0	120	9,950
MANGANESE	3	0	3	464
MERCURY	0	0	0	0
NICKEL	0	0	0	699
POTASSIUM	152	0	152	44,445
SODIUM	778	0	778	7,425
TITANIUM	0	0	0	(116)
ZINC	1	0	1	223
BOD	2,408	0	2,408	(1,792)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	11			
NITROGEN	341	0	11	1,034
DISS SOLID		0	341	1,742
CHLORIDE	7,033	0	7,033	209,109
SILICA	1,006	0	1,006	36,471
SUSP SOLID	82	0	82	185
OIL	326	0	326	34,395
SULPHUR	21	0	21	(116,391)
NH3	807	0	807	109,524
PHENOL	662	0	662	(17,293)
CYANIDE	1	0	1	(95)
ALUMINUM	14	0	14	40
BORON	468	0	468	349
BROMINE	0	0	0	(65)
CADMIUM	0	0	0	(40)
CALCIUM	0	0	0	104
CHROMIUM	1,949	0	1,949	36,032
COPPER	0	0	0	49
FLUORIDE	1	0	1	918
IRON	58	0	58	501
LEAD	21	0	21	778
MAGNESIUM	1	0	1	679
MANGANESE	251	0	251	8,052
MERCURY	5	0	5	300
NICKEL	0	0	0	0
POTASSIUM	0	0	0	354
SODIUM	320	0	320	257
TITANIUM	1,637	0	1,637	12,430
ZINC	0	0	0	(161)
BOD	3	0	3	245
	5,068	0	5,068	(5,444)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	5	0	5	1,525
NITROGEN	267	0	267	4,533
DISS SOLID	1,625	0	1,625	1,432,265
CHLORIDE	228	0	228	70,004
SILICA	29	0	29	47,029
SUSP SOLID	187	0	187	67,018
OIL	33	0	33	(55,228)
SULPHUR	185	0	185	225,080
NH3	661	0	661	(1,581)
PHENOL	1	0	1	19
CYANIDE	14	0	14	157
ALUMINUM	466	0	466	773
BORON	0	0	0	(349)
BROMINE	0	0	0	(213)
CADMIUM	0	0	0	358
CALCIUM	1,944	0	1,944	2,845,030
CHROMIUM	0	0	0	105
COPPER	0	0	0	894
FLUORIDE	58	0	58	3,821
IRON	6	0	6	5,803
LEAD	0	0	0	1,171
MAGNESIUM	57	0	57	41,369
MANGANESE	5	0	5	677
MERCURY	0	0	0	1
NICKEL	0	0	0	2,714
POTASSIUM	319	0	319	17,517
SODIUM	1,633	0	1,633	47,971
TITANIUM	0	0	0	(24)
ZINC	1	0	1	832
BOD	5,053	0	5,053	15,966

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	4	0	4	95
NITROGEN	108	0	108	3,506
DISS SOLID	2,231	0	2,231	1,230,984
CHLORIDE	320	0	320	43,831
SILICA	26	0	26	14,968
SUSP SOLID	104	0	104	50,360
OIL	6	0	6	(13,478)
SULPHUR	256	0	256	208,331
NH3	211	0	211	(1,380)
PHENOL	0	0	0	(4)
CYANIDE	4	0	4	35
ALUMINUM	149	0	149	2,114
BORON	0	0	0	(646)
BROMINE	0	0	0	(394)
CADMIUM	0	0	0	63
CALCIUM	618	0	618	246,753
CHROMIUM	0	0	0	68
COPPER	0	0	0	248
FLUORIDE	19	0	19	697
IRON	6	0	6	590
LEAD	0	0	0	379
MAGNESIUM	80	0	80	96,346
MANGANESE	2	0	2	46
MERCURY	0	0	0	0
NICKEL	0	0	0	211
POTASSIUM	102	0	102	2,923
SODIUM	519	0	519	62,680
TITANIUM	0	0	0	(23)
ZINC	1	0	1	977
BOD	1,607	0	1,607	10,194

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
CANADA

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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 2020. IN METRIC TONNES.

REGION 1 KAMINISTIKWIA

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	0	3	276
NITROGEN	121	0	121	1,652
DISS SOLID	1,593	0	1,593	605,060
CHLORIDE	227	0	227	37,764
SILICA	21	0	21	23,995
SUSP SOLID	100	0	100	20,984
OIL	12	0	12	(1,802)
SULPHUR	183	0	183	78,533
NH3	267	0	267	(15,967)
PHENOL	0	0	0	18
CYANIDE	5	0	5	32
ALUMINUM	189	0	189	482
BORON	0	0	0	(12)
BROMINE	0	0	0	(7)
CADMIUM	0	0	0	106
CALCIUM	787	0	787	44,563
CHROMIUM	0	0	0	85
COPPER	0	0	0	140
FLUORIDE	23	0	23	850
IRON	5	0	5	4,772
LEAD	0	0	0	332
MAGNESIUM	57	0	57	36,251
MANGANESE	2	0	2	417
MERCURY	0	0	0	1
NICKEL	0	0	0	185
POTASSIUM	129	0	129	4,725
SODIUM	661	0	661	38,440
TITANIUM	0	0	0	(349)
ZINC	1	0	1	176
BUD	2,047	0	2,047	64,146

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 2 NIPIGON-LONG LAC

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	0	0	203
NITROGEN	4	0	4	4,855
DISS SOLID	44	0	44	1,441,252
CHLORIDE	6	0	6	124,489
SILICA	1	0	1	71,532
SUSP SOLID	3	0	3	211,736
OIL	0	0	0	(669)
SULPHUR	5	0	5	100,999
NH3	7	0	7	(11,292)
PHENOL	0	0	0	104
CYANIDE	0	0	0	140
ALUMINUM	5	0	5	40
BORON	0	0	0	(2)
BROMINE	0	0	0	(1)
CADMIUM	0	0	0	54
CALCIUM	22	0	22	(3,074)
CHROMIUM	0	0	0	122
COPPER	0	0	0	133
FLUORIDE	1	0	1	733
IRON	0	0	0	3,165
LEAD	0	0	0	356
MAGNESIUM	2	0	2	72,531
MANGANESE	0	0	0	581
MERCURY	0	0	0	2
NICKEL	0	0	0	512
POTASSIUM	4	0	4	19,995
SODIUM	18	0	18	69,370
TITANIUM	0	0	0	(237)
ZINC	0	0	0	29
BOD	57	0	57	8,792

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 3 MAGPIE MONTREAL

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PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	0	0	0	63
NITROGEN	0	0	0	79,405
DISS SOLID	0	0	0	398,609
CHLORIDE	0	0	0	9,619
SILICA	0	0	0	25,035
SUSP SOLID	0	0	0	7,232
OIL	0	0	0	(194)
SULPHUR	0	0	0	45,840
NI3	0	0	0	(321)
PHENOL	0	0	0	28
CYANIDE	0	0	0	61
ALUMINIUM	0	0	0	167
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	4
CALCIUM	0	0	0	65,958
CHROMIUM	0	0	0	578
COPPER	0	0	0	40
FLUORIDE	0	0	0	393
IRON	0	0	0	500
LEAD	0	0	0	40
MAGNESIUM	0	0	0	11,351
MANGANESE	0	0	0	4,275
MERCURY	0	0	0	2
NICKEL	0	0	0	39
POTASSIUM	0	0	0	5,057
SODIUM	0	0	0	6,775
TITANIUM	0	0	0	(2)
ZINC	0	0	0	4
BOD	0	0	0	(30)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 4 SAULT STE. MARIE

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	0	3	333
NITROGEN	103	0	103	8,715
DISS SOLID	1,347	0	1,347	110,374
CHLORIDE	192	0	192	56,730
SILICA	18	0	18	30,146
SUSP SOLID	85	0	85	34,950
OIL	10	0	10	(174,641)
SULPHUR	155	0	155	76,849
NH3	227	0	227	(110)
PHENOL	0	0	0	24
CYANIDE	4	0	4	733
ALUMINUM	160	0	160	24,590
BORON	0	0	0	(11)
BROMINE	0	0	0	(6)
CADMIUM	0	0	0	108
CALCIUM	666	0	666	58,386
CHROMIUM	0	0	0	50
COPPER	0	0	0	344,754
FLUORIDE	20	0	20	476
IRON	4	0	4	2,643
LEAD	0	0	0	646
MAGNESIUM	48	0	48	9,879
MANGANESE	2	0	2	464
MERCURY	0	0	0	0
NICKEL	0	0	0	699
POTASSIUM	109	0	109	44,401
SODIUM	559	0	559	7,206
TITANIUM	0	0	0	(116)
ZINC	1	0	1	222
UOD	1,732	0	1,732	(2,469)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 5 FRENCH SPANISH

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	5	0	5	1,029
NITROGEN	221	0	221	1,623
DISS SOLID CHLORIDE	2,917	0	2,917	204,993
SILICA	415	0	415	35,879
SUSP SOLID	38	0	38	141
OIL	183	0	183	34,253
SULPHUR	21	0	21	(116,391)
NH3	335	0	335	109,051
PHENOL	490	0	490	(17,465)
CYANIDE	1	0	1	(95)
ALUMINUM	11	0	11	36
BORON	346	0	346	227
BROMINE	0	0	0	(65)
CADMIUM	0	0	0	(40)
CALCIUM	0	0	0	104
CHROMIUM	1,441	0	1,441	35,524
COPPER	0	0	0	49
FLUORIDE	0	0	0	917
IRON	43	0	43	486
LEAD	9	0	9	768
MAGNESIUM	0	0	0	679
MANGANESE	104	0	104	7,905
MERCURY	4	0	4	298
NICKEL	0	0	0	0
POTASSIUM	0	0	0	354
SODIUM	237	0	237	173
TITANIUM	1,211	0	1,211	12,003
ZINC	0	0	0	(161)
BOD	1	0	1	244
	3,748	0	3,748	(6,765)

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 6 SEVERN-GEORG BAY

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	4	0	4	1,523
NITROGEN	196	0	196	4,462
DISS SOLID CHLORIDE	1,193	0	1,193	1,431,832
SILICA	167	0	167	69,944
SUSP SOLID	22	0	22	47,021
OIL	138	0	138	66,967
SULPHUR	24	0	24	(55,237)
NH3	136	0	136	225,031
PHENOL	485	0	485	(1,757)
CYANIDE	1	0	1	19
ALUMINUM	10	0	10	153
BORON	342	0	342	649
BROMINE	0	0	0	(349)
CADMIUM	0	0	0	(213)
CALCIUM	0	0	0	358
CHROMIUM	1,427	0	1,427	2,844,511
COPPER	0	0	0	105
FLUORIDE	0	0	0	894
IRON	43	0	43	3,806
LEAD	4	0	4	5,801
MAGNESIUM	0	0	0	1,171
MANGANESE	41	0	41	41,354
MERCURY	4	0	4	676
NICKEL	0	0	0	1
POTASSIUM	0	0	0	2,714
SODIUM	234	0	234	17,431
TITANIUM	1,198	0	1,198	47,536
ZINC	0	0	0	(24)
BOD	1	0	1	832
	3,708	0	3,708	14,621

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020. IN METRIC TONNES.

DATE 03/11/76

REGION 7 SAUGEEN MAITLAND

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	0	2	93
NITROGEN	66	0	66	3,463
DISS SOLID	861	0	861	1,229,614
CHLORIDE	122	0	122	43,635
SILICA	11	0	11	14,953
SUSP SOLID	54	0	54	50,311
OIL	6	0	6	(13,478)
SULPHUR	99	0	99	208,174
NH3	145	0	145	(1,445)
PHENOL	0	0	0	(4)
CYANIDE	3	0	3	33
ALUMINUM	103	0	103	2,068
BORON	0	0	0	(646)
BROMINE	0	0	0	(394)
CADMIUM	0	0	0	63
CALCIUM	426	0	426	246,560
CHROMIUM	0	0	0	68
COPPER	0	0	0	248
FLUORIDE	13	0	13	691
IRON	3	0	3	587
LEAD	0	0	0	379
MAGNESIUM	31	0	31	96,296
MANGANESE	1	0	1	46
MERCURY	0	0	0	0
NICKEL	0	0	0	211
POTASSIUM	70	0	70	2,892
SODIUM	357	0	357	62,518
TITANIUM	0	0	0	(23)
ZINC	0	0	0	976
BOD	1,107	0	1,107	9,694

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ZERO DISCHARGE

U.S.A.

LOADING SUMMARY

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY. ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 1974. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	230	31	259	1,841	377	109	486	4005 2,398.
NITROGEN	843	1,220	2,065	19,747	1,616	3,465	5,080	29,221
DISS SOLID	35,815	75,494	111,308	2,423,600	81,487	585,162	666,649	4,174,413
CHLORIDE	5,134	6,967	12,120	109,208	11,910	116,951	128,861	471,890
SILICA	362	9,123	9,485	208,415	686	809	1,495	96,556
SUSP SOLID	8,685	53,222	61,908	23,192,100	16,556	541,795	558,351	689,685
OIL	534	706	1,239	18,688	1,284	860	2,145	31,398
SULPHUR	10,206	5,282	15,489	180,658	23,314	36,407	59,720	479,150
HHS	822	238	1,059	2,318	1,976	989	2,966	2,309
PHENOL	0	34	35	155	1	18	19	253
CYANIDE	26	3	29	90	64	14	77	2
ALUMINUM	880	195	1,075	0	2,118	194	2,312	0
BORON	0	24	25	0	0	1,714	1,714	0
BROMINE	0	15	15	0	0	1,045	1,045	0
CADMIUM	3	4	7	32	7	1	7	18
CALCIUM	8,947	12,653	21,601	319,174	21,527	98,726	120,253	715,096
CHROMIUM	44	2	46	181	130	2	131	6
COPPER	69	4	74	641	122	1	122	56
FLUORIDE	110	24	134	4,168	265	93	357	2,933
IRON	1,481	199	1,679	40,478	3,024	982	4,006	22,216
LEAD	34	5	40	754	62	7	70	87
MAGNESIUM	2,640	3,062	6,303	216,007	6,125	12,337	18,462	208,358
MANGANESE	2,786	62	2,849	1,363	6,705	19	6,724	335
MERCURY	0	0	0	12	0	0	0	2
NICKEL	41	5	47	219	95	4	99	81
POTASSIUM	1,188	2,483	3,671	43,690	2,858	3,186	6,044	27,806
SODIUM	9,387	10,444	19,831	96,579	22,586	35,417	58,002	211,988
TITANIUM	0	200	200	0	0	93	93	0
ZINC	98	89	187	1,013	201	59	260	210
BOD	14,521	8,956	23,477	57,889	34,938	6,953	41,891	49,003

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

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LAKE LOADINGS SUMMARY. ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 1980. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	LAKE SUPERIOR				LAKE HURON			
	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	203	29	232	1,814				
NITROGEN	826	1,148	1,974	19,656	376	110	486	1,095 2,398
DISS SOLID	37,104	69,527	106,630	2,418,922	1,751	3,448	5,199	29,341
CHLORIDE	5,368	6,547	11,913	109,002	90,599	607,757	698,356	4,206,120
SILICA	344	7,061	8,204	207,135	13,292	121,846	135,138	478,167
SUSP SOLID	8,128	49,159	57,288	23,187,479	724	715	1,439	96,500
OIL	544	078	1,222	18,671	16,953	568,886	585,840	717,175
SULPHUR	10,593	4,916	15,509	180,679	1,340	816	2,156	31,410
NHS	907	219	1,186	2,444	25,941	37,032	62,973	482,403
PHENOL	1	34	34	155	2,397	983	3,379	2,723
CYANIDE	32	2	33	95	1	19	20	253
ALUMINUM	1,036	194	1,230	155	77	13	89	14
BORON	0	27	27	3	2,568	205	2,773	461
BROMINE	0	16	16	2	0	1,814	1,815	101
CAESIUM	3	4	6	32	0	1,106	1,106	61
CALCIUM	10,535	11,847	22,382	319,756	7	1	8	18
CHROMIUM	51	2	53	188	26,105	103,200	129,304	724,147
COPPER	04	4	68	634	148	1	149	25
FLUORIDE	130	21	150	4,185	127	1	128	61
IRON	1,454	179	1,633	40,432	321	84	405	2,981
LEAD	32	5	37	751	3,258	958	4,216	22,426
MAGNESIUM	2,700	3,236	5,996	215,700	67	7	74	01
MANGANESE	3,281	54	3,335	1,850	6,836	13,013	19,850	209,746
MERCURY	0	0	0	12	8,131	16	8,147	1,758
NICKEL	43	5	48	220	0	0	1	2
POTASSIUM	1,399	2,170	3,569	43,588	106	4	110	91
SODIUM	11,054	9,980	21,034	97,782	3,466	3,211	6,677	28,438
TITANIUM	0	198	198	(2)	27,388	36,031	63,418	217,403
ZINC	90	87	184	1,011	0	97	97	4
BDU	17,098	8,788	25,886	60,298	218	59	277	227
					42,366	6,956	49,322	56,434

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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LAKE LOADINGS SUMMARY. ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 1985. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	107	0	107	1,690	85	0	85	605,998
NITROGEN	607	0	607	18,290	1,122	0	1,122	25,264
DISS SOLID	33,329	0	33,329	2,345,621	84,026	0	84,026	3,591,791
CHLORIDE	4,873	0	4,873	101,961	12,572	0	12,572	355,602
SILICA	245	0	245	199,175	441	0	441	95,502
SUSP SOLID	3,317	0	3,317	23,133,508	3,831	0	3,831	135,167
OIL	14	0	14	17,462	35	0	35	29,289
SULPHUR	9,536	0	9,536	174,706	24,157	0	24,157	443,587
NHS	940	0	940	2,199	2,426	0	2,426	1,769
PHENOL	1	0	1	121	1	0	1	235
CYANIDE	31	0	31	92	78	0	78	3
ALUMINIUM	1,008	0	1,008	(68)	2,600	0	2,600	288
BORON	0	0	0	(24)	0	0	0	(1,714)
BROMINE	0	0	0	(15)	0	0	0	(1,045)
CADMIUM	3	0	3	29	7	0	7	17
CALCIUM	10,245	0	10,245	307,619	26,430	0	26,430	621,274
CHROMIUM	42	0	42	177	140	0	140	15
COPPER	49	0	49	616	78	0	78	12
FLUORIDE	126	0	126	4,161	325	0	325	2,901
IRON	1,097	0	1,097	39,897	2,316	0	2,316	20,525
LEAD	25	0	25	740	46	0	46	63
MAGNESIUM	2,507	0	2,507	212,210	6,466	0	6,466	196,362
MANGANESE	3,191	0	3,191	1,706	8,232	0	8,232	1,843
MERCURY	0	0	0	12	0	0	0	2
NICKEL	39	0	39	211	101	0	101	82
POTASSIUM	1,361	0	1,361	41,379	3,510	0	3,510	25,271
SODIUM	10,749	0	10,749	87,497	27,731	0	27,731	181,715
TITANIUM	0	0	0	(200)	0	0	0	(93)
ZINC	82	0	82	908	177	0	177	127
BOD	16,628	0	16,628	51,040	42,896	0	42,896	50,007

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.

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LAKE LOADINGS SUMMARY, ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 1990, IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	65	0	65	1,648	74	0	74	593,1986
NITROGEN	489	0	489	18,171	1,077	0	1,077	25,219
DISS SOLID	26,613	0	26,613	2,338,905	70,467	0	70,467	3,578,232
CHLORIDE	3,921	0	3,921	101,010	10,535	0	10,535	353,565
SILICA	178	0	178	199,108	378	0	378	95,439
SOSP SOLID	2,205	0	2,205	23,132,397	3,434	0	3,434	134,769
OIL	28	0	28	17,476	74	0	74	29,328
SULPHUR	7,627	0	7,627	172,796	20,255	0	20,255	439,685
THO	954	0	954	2,212	2,561	0	2,561	1,905
PHENOL	1	0	1	121	2	0	2	235
CYANIDE	31	0	31	92	82	0	82	7
ALUMINUM	1,021	0	1,021	(53)	2,745	0	2,745	433
BORON	0	0	0	(24)	0	0	0	(1,714)
BROMINE	0	0	0	(15)	0	0	0	(1,045)
CADMIUM	2	0	2	28	6	0	6	16
CALCIUM	10,387	0	10,387	307,761	27,905	0	27,905	622,748
CHROMIUM	38	0	38	173	117	0	117	(7)
COPPER	34	0	34	601	68	0	68	0
FLUORIDE	128	0	128	4,162	343	0	343	2,919
IRON	832	0	832	39,632	1,966	0	1,966	20,175
LEAD	18	0	18	733	39	0	39	56
MAGNESIUM	2,017	0	2,017	211,721	5,418	0	5,418	195,314
MANGANESE	3,236	0	3,236	1,750	8,692	0	8,692	2,302
MERCURY	0	0	0	12	1	0	1	2
NICKEL	32	0	32	203	85	0	85	66
POTASSIUM	1,380	0	1,380	41,398	3,705	0	3,705	25,466
SODIUM	10,898	0	10,898	87,647	29,278	0	29,278	183,263
TITANIUM	0	0	0	(200)	0	0	0	(93)
ZINC	62	0	62	888	149	0	149	99
BOU	16,858	0	16,858	51,270	45,289	0	45,289	52,401

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WASTELOADING SIMULATION MODEL
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LAKE LOADINGS SUMMARY, ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 2000, IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	17	0	17	1,600	51	0	51	574 1964
NITROGEN	290	0	290	17,979	866	0	866	25,007
DISS SOLID	16,025	0	16,025	2,328,317	46,633	0	46,633	3,554,398
CHLORIDE	2,393	0	2,393	99,481	6,963	0	6,963	349,993
SILICA	89	0	89	199,019	258	0	258	95,319
SUSP SOLID	805	0	865	23,131,057	2,516	0	2,516	133,851
OIL	34	0	34	17,483	99	0	99	29,354
SULPHUR	4,605	0	4,605	169,775	13,401	0	13,401	432,831
PHENOL	787	0	787	2,045	2,288	0	2,288	1,631
CYANIDE	0	0	0	121	1	0	1	235
ALUMINUM	25	0	25	86	74	0	74	(2)
BORON	842	0	842	(232)	2,452	0	2,452	140
BRONINE	0	0	0	(24)	0	0	0	(1,714)
CADMIUM	0	0	0	(15)	0	0	0	(1,045)
CALCIUM	2	0	2	27	4	0	4	14
CHROMIUM	8,564	0	8,564	305,938	24,922	0	24,922	619,764
COPPER	27	0	27	162	77	0	77	(47)
FLUORIDE	15	0	15	582	46	0	46	(22)
IRON	105	0	105	4,140	306	0	306	2,803
LEAD	456	0	456	39,255	1,328	0	1,328	19,537
MAGNESIUM	9	0	9	724	26	0	26	43
MANGANESE	1,230	0	1,230	210,935	3,581	0	3,581	193,478
MERCURY	2,668	0	2,668	1,102	7,762	0	7,762	1,373
NICKEL	0	0	0	12	0	0	0	2
POTASSIUM	19	0	19	191	56	0	56	37
SODIUM	1,138	0	1,138	41,156	3,309	0	3,309	25,070
TITANIUM	8,986	0	8,986	85,733	26,147	0	26,147	180,132
ZINC	0	0	0	(200)	0	0	0	(93)
BOU	34	0	34	860	100	0	100	49
	13,900	0	13,900	48,312	40,447	0	40,447	47,558

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WASTELOADING SIMULATION MODEL
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LAKE LOADINGS SUMMARY. ZERO LOADINGS. 1985 POLICY.

LOADINGS FOR 2010. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	10	0	10	1,592	32	0	32	552 1945
NITROGEN	204	0	204	17,887	643	0	643	24,784
DISS SOLID	8,019	0	8,019	2,320,311	25,260	0	25,260	3,533,026
CHLORIDE	1,193	0	1,193	98,282	3,760	0	3,760	346,790
SILICA	48	0	48	198,978	151	0	151	95,212
SOSP SOLID	530	0	530	23,130,722	1,670	0	1,670	133,005
OIL	35	0	35	17,483	110	0	110	29,364
SULPHUR	2,303	0	2,303	167,473	7,255	0	7,255	426,685
HHS	605	0	605	1,863	1,904	0	1,904	1,247
PHENOL	0	0	0	121	1	0	1	234
CYANIDE	20	0	20	81	61	0	61	(14)
ALUMINUM	648	0	648	(428)	2,040	0	2,040	(272)
BORON	0	0	0	(24)	0	0	0	(1,714)
BROMINE	0	0	0	(15)	0	0	0	(1,045)
CADMIUM	1	0	1	26	2	0	2	13
CALCIUM	6,584	0	6,584	303,958	20,741	0	20,741	615,584
CHROMIUM	14	0	14	149	42	0	42	(83)
COPPER	8	0	8	575	27	0	27	(40)
FLUORINE	81	0	81	4,116	255	0	255	2,831
IRON	239	0	239	39,030	752	0	752	18,962
LEAD	4	0	4	719	15	0	15	32
MAGNESIUM	614	0	614	210,318	1,934	0	1,934	191,831
MANGANESE	2,051	0	2,051	565	6,460	0	6,460	71
MERCURY	0	0	0	12	0	0	0	2
NICKEL	10	0	10	181	30	0	30	12
POTASSIUM	874	0	874	40,893	2,754	0	2,754	24,515
SODIUM	6,908	0	6,908	83,657	21,761	0	21,761	175,747
TITANIUM	0	0	0	(200)	0	0	0	(93)
ZINC	17	0	17	844	55	0	55	4
BOU	10,686	0	10,686	45,099	33,662	0	33,662	40,774

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.

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LAKE LOADINGS SUMMARY. ZERO LOADINGS, 1985 POLICY.

LOADINGS FOR 2020. IN METRIC TONNES.

LAKE SUPERIOR

LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL	MUNICIPAL	INDUSTRIAL	TOTAL	CALIBRATED TOTAL
PHOSPHORUS	4	0	4	1,587	15	0	15	535 1928
NITROGEN	122	0	122	17,804	414	0	414	24,555
DISS SOLID	2,512	0	2,512	2,314,804	8,564	0	8,564	3,516,329
CHLORIDE	370	0	370	97,458	1,262	0	1,262	344,291
SILICA	19	0	19	198,949	63	0	63	95,124
SUSP SOLID	267	0	267	23,130,459	911	0	911	132,246
OIL	30	0	30	17,478	101	0	101	29,354
SULPHUR	720	0	720	165,890	2,454	0	2,454	421,884
NO3	409	0	409	1,667	1,392	0	1,392	736
PHENOL	0	0	0	121	1	0	1	234
CYANIDE	14	0	14	75	45	0	45	(31)
ALUMINUM	437	0	437	(637)	1,492	0	1,492	(820)
BORON	0	0	0	(24)	0	0	0	(1,714)
BROMINE	0	0	0	(15)	0	0	0	(1,045)
CADMIUM	0	0	0	26	1	0	1	11
CALCIUM	4,450	0	4,450	301,824	15,168	0	15,168	610,011
CHROMIUM	4	0	4	140	14	0	14	(111)
COPPER	4	0	4	570	11	0	11	(56)
FLUORIDE	55	0	55	4,089	186	0	186	2,762
IRON	86	0	86	38,885	293	0	293	18,502
LEAD	2	0	2	715	6	0	6	23
MAGNESIUM	191	0	191	209,894	649	0	649	190,545
MANGANESE	1,386	0	1,386	(100)	4,724	0	4,724	(1,665)
MERCURY	0	0	0	12	0	0	0	2
NICKEL	3	0	3	175	10	0	10	(9)
POTASSIUM	591	0	591	40,610	2,014	0	2,014	23,775
SODIUM	4,668	0	4,668	81,417	15,914	0	15,914	169,899
TITANIUM	0	0	0	(200)	0	0	0	(93)
ZINC	0	0	0	832	20	0	20	(31)
BOU	7,222	0	7,222	41,634	24,617	0	24,617	31,729

ZERO DISCHARGE

. U.S.A.

CAPITAL COSTS

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
 UPPER LAKES REFERENCE GROUP
 WASTELOADING SIMULATION MODEL

DATE 04/20/76

ECONOMIC SUMMARY
 CAPITAL INVESTMENT ONLY
 ZERO LOADINGS, 1985 POLICY
 1972 CONSTANT U.S. DOLLAR

U. S. A.

YEAR	LAKE SUPERIOR				LAKE HURON			
	INDUSTRIAL		MUNICIPAL		INDUSTRIAL		MUNICIPAL	
	ITMI11	ITMI13	MTMI11	MTMI13	ITMI11	ITMI13	MTMI11	MTMI13
1974.	\$871,782	\$871,782	\$189,434	\$189,433	\$3,984,530	\$3,984,530	\$788,087	\$788,087
1980.	\$765,253	\$932,143	\$167,197	\$1,887,386	\$4,066,271	\$4,866,618	\$775,236	\$2,752,644
1985.	\$809,938	\$2,090,537,520	\$211,365	\$5,481,102	\$4,556,371	\$10,208,845,824	\$961,819	\$13,353,043
1990.	\$887,626	\$143,585,866	\$282,302	\$1,981,626	\$5,088,934	\$823,204,552	\$1,262,683	\$3,689,115
2000.	\$1,077,534	\$174,305,970	\$175,781	\$1,254,102	\$6,162,991	\$996,947,768	\$888,197	\$2,438,833
2010.	\$1,206,524	\$195,171,976	\$177,595	\$410,886	\$7,062,568	\$1,142,466,608	\$900,030	\$821,630
2020.	\$1,158,283	\$187,368,288	\$270,782	\$540,221	\$7,589,498	\$1,227,704,656	\$1,319,843	\$1,701,297

ZERO DISCHARGE

U.S.A.

REGION LOADINGS

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 1974. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	155	23	178	1,544
NITROGEN	576	912	1,489	14,126
DISS SOLID	24,703	59,029	83,732	1,726,450
CHLORIDE	3,542	6,190	9,732	67,233
SILICA	247	6,673	6,920	150,015
SUSP SOLID	5,776	40,882	46,660	22,976,750
OIL	337	508	845	9,490
SULPHUR	7,040	4,370	11,410	95,613
NHS	567	184	750	1,763
PHENOL	0	23	23	107
CYANIDE	18	3	21	77
ALUMINUM	607	130	737	0
BORON	0	24	24	0
BROMINE	0	15	15	0
CADMIUM	2	3	4	14
CALCIUM	6,172	9,827	15,999	319,010
CHROMIUM	30	1	32	111
COPPER	48	3	50	570
FLUORIDE	76	22	98	2,413
IRON	1,012	172	1,184	33,069
LEAD	23	4	28	360
MAGNESIUM	1,822	2,587	4,407	181,551
MANGANESE	1,922	46	1,969	1,227
MERCURY	0	0	0	4
NICKEL	28	4	32	141
POTASSIUM	820	1,854	2,674	24,783
SODIUM	6,475	7,890	14,367	57,524
TITANIUM	0	132	132	0
ZINC	68	59	127	744
BUD	10,017	6,117	16,134	40,588

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/10/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	74	6	81	298
NITROGEN	267	309	576	5,621
DISS SOLID	11,112	16,465	27,576	697,150
CHLORIDE	1,592	796	2,388	41,975
SILICA	114	2,450	2,564	58,400
SUSP SOLID	2,909	12,340	15,249	215,350
OIL	196	198	395	9,198
SULPHUR	3,166	912	4,079	85,045
NH3	255	55	310	554
PHENOL	0	12	12	48
CYANIDE	8	0	8	14
ALUMINIUM	273	66	338	0
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	2	19
CALCIUM	2,775	3,026	5,801	165
CHROMIUM	14	0	14	70
COPPER	22	1	23	71
FLUORIDE	34	2	36	1,756
IRON	468	27	496	7,410
LEAD	11	1	12	394
MAGNESIUM	819	1,076	1,895	34,456
MANGANESE	864	15	880	137
MERCURY	0	0	0	8
NICKEL	13	1	14	77
POTASSIUM	368	629	998	18,907
SODIUM	2,912	2,553	5,465	39,055
TITANIUM	0	68	68	0
ZINC	31	30	60	269
BOO	4,504	2,838	7,341	17,301

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974. IN METRIC TONNES.

DATE 03/10/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	4	27	42 191
NITROGEN	77	121	197	2,125
DISS SOLID	3,042	8,860	11,902	378,735
CHLORIDE	437	395	832	22,211
SILICA	33	12	44	20,089
SUSP SOLID	979	3,346	4,325	28,395
OIL	83	212	295	5,337
SULPHUR	867	887	1,754	30,420
PH3	70	28	98	170
PHENOL	0	12	12	170
CYANIDE	2	0	3	0
ALUMINIUM	75	66	140	0
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	760	2,102	2,863	110,066
CHROMIUM	4	0	5	0
COPPER	5	0	6	6
FLUORIDE	9	2	12	449
IRON	135	30	165	609
LEAD	3	0	3	20
MAGNESIUM	224	169	394	33,177
MANGANESE	237	1	238	27
MERCURY	0	0	0	0
NICKEL	4	0	4	11
POTASSIUM	101	53	154	2,681
SODIUM	798	2,230	3,028	15,214
TITANIUM	0	68	68	0
ZINC	8	28	36	39
BOD	1,235	2,538	3,773	7,915

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1974, IN METRIC TONNES.

DATE 03/10/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	355	104	459	963 2,207
NITROGEN	1,538	3,344	4,882	27,095
DISS SOLID CHLORIDE	78,445	576,301	654,747	3,795,678
SILICA	11,473	116,555	128,030	449,679
SUSP SOLID OIL	652	798	1,451	76,467
SULPHUR	15,577	538,448	554,025	661,290
NHS	1,201	648	1,849	26,061
PHENOL	22,447	35,519	57,966	448,730
CYANIDE	1,906	960	2,867	2,138
ALUMINUM	1	7	8	83
BORON	61	14	75	2
BROMINE	2,043	129	2,172	0
CADMIUM	0	1,714	1,714	0
CALCIUM	0	1,045	1,045	0
CHROMIUM	6	1	7	15
COPPER	20,767	96,623	117,390	605,029
FLUORIDE	125	1	126	6
IRON	116	1	117	49
LEAD	256	90	346	2,484
MAGNESIUM	2,889	952	3,841	21,606
MANGANESE	59	7	67	68
MERCURY	5,900	12,167	18,068	175,181
NICKEL	6,468	18	6,486	308
POTASSIUM	0	0	0	2
SODIUM	92	4	95	70
TITANIUM	2,758	3,133	5,890	25,124
ZINC	21,788	33,187	54,975	196,774
BOD	0	24	24	0
	192	32	223	170
	33,703	4,415	38,119	41,088

UPPER LAKES REFERENCE GROUP
WASTELOADING SIMULATION MODEL
U. S. A.

ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 1980. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	133	22	155	1,520
NITROGEN	551	836	1,387	14,024
DISS SOLID	25,038	54,284	79,322	1,722,040
CHLORIDE	3,624	5,807	9,431	66,932
SILICA	229	5,786	6,015	149,109
SUSP SOLID	5,255	37,726	42,981	22,973,072
OIL	338	475	814	9,459
SULPHUR	7,150	4,021	11,171	95,374
PH3	657	164	821	1,833
PHENOL	0	23	23	106
CYANIDE	21	2	23	79
ALUMINUM	704	126	830	93
BORON	0	27	27	3
BROMINE	0	16	16	2
CADMIUM	2	3	4	14
CALCIUM	7,155	9,124	16,279	319,290
CHROMIUM	34	1	35	115
COPPER	43	3	46	564
FLUORIDE	88	19	107	2,422
IRON	969	151	1,121	33,007
LEAD	22	4	25	357
MAGNESIUM	1,864	2,295	4,159	181,302
MANGANESE	2,228	40	2,269	1,526
MERCURY	0	0	0	4
NICKEL	29	4	33	141
POTASSIUM	950	1,625	2,575	24,684
SODIUM	7,507	7,384	14,891	58,048
TITANIUM	0	128	128	(4)
ZINC	65	57	122	739
UOD	11,613	5,843	17,456	41,908

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1960. IN METRIC TONNES.

DATE 03/10/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	70	7	77	294
NITROGEN	275	311	588	5,632
DISS SOLID	12,065	15,242	27,308	696,882
CHLORIDE	1,743	739	2,482	42,069
SILICA	115	2,075	2,191	58,026
SUSP SOLID	2,873	11,434	14,306	214,407
OIL	206	202	408	9,212
SULPHUR	3,444	894	4,338	85,305
NH3	311	55	365	611
PHENOL	0	12	12	49
CYANIDE	10	0	10	15
ALUMINIUM	332	68	401	62
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	1	2	19
CALCIUM	3,380	2,723	6,103	466
CHROMIUM	17	0	17	73
COPPER	22	1	23	70
FLUORIDE	41	2	44	1,763
IRON	484	28	512	7,425
LEAD	11	1	12	394
MAGNESIUM	696	940	1,837	34,398
MANGANESE	1,053	14	1,066	323
MERCURY	0	0	0	8
NICKEL	14	1	15	78
POTASSIUM	449	545	994	18,904
SODIUM	3,546	2,597	6,142	39,733
TITANIUM	0	70	70	3
ZINC	32	31	62	271
BOD	5,485	2,945	8,430	18,390

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	23	4	27	43 192
NITROGEN	84	124	208	2,136
DISS SOLID	3,421	8,863	12,284	379,118
CHLORIDE	493	387	880	22,260
SILICA	35	12	47	20,092
SUSP SOLID	1,014	3,455	4,469	28,539
OIL	86	218	303	5,345
SULPHUR	976	899	1,876	30,542
NH3	85	29	113	185
PHENOL	0	12	12	171
CYANIDE	3	0	3	1
ALUMINUM	90	68	158	18
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	917	2,166	3,083	110,287
CHROMIUM	5	0	5	1
COPPER	6	0	6	7
FLUORIDE	12	2	14	451
IRON	147	31	176	621
LEAD	3	0	4	20
MAGNESIUM	254	166	419	33,202
MANGANESE	285	1	286	77
MERCURY	0	0	0	0
NICKEL	4	0	4	12
POTASSIUM	122	53	176	2,703
SODIUM	962	2,318	3,281	15,467
TITANIUM	0	70	70	3
ZINC	9	29	38	40
BOD	1,489	2,645	4,134	8,276

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1980. IN METRIC TONNES.

DATE 03/10/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	353	105	458	962 2,206
NITROGEN	1,069	3,324	4,992	27,205
DISS SOLID	87,178	598,894	686,072	3,827,003
CHLORIDE	12,600	121,459	134,258	455,908
SILICA	689	702	1,392	76,408
SUSP SOLID	15,939	565,431	581,370	688,636
OIL	1,255	598	1,852	26,065
SULPHUR	24,965	36,133	61,098	451,861
NH3	2,312	953	3,265	2,537
PHENOL	1	7	8	83
CYANIDE	75	12	86	14
ALUMINUM	2,478	137	2,615	443
BORON	0	1,814	1,815	101
BROMINE	0	1,106	1,106	61
CADMIUM	7	1	8	15
CALCIUM	25,187	101,034	126,221	613,860
CHROMIUM	142	1	143	24
COPPER	121	1	122	54
FLUORIDE	310	82	392	2,531
IRON	3,112	929	4,040	21,805
LEAD	63	7	70	71
MAGNESIUM	6,583	12,848	19,430	176,544
MANGANESE	7,845	15	7,861	1,682
MERCURY	0	0	1	2
NICKEL	103	4	105	80
POTASSIUM	3,344	3,158	6,502	25,736
SODIUM	26,426	33,712	60,137	201,937
TITANIUM	0	27	27	2
ZINC	209	31	239	185
BOD	40,877	4,311	45,188	48,156

UPPER LAKES REFERENCE GROUP
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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 1985, IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	74	0	74	1,439
NITROGEN	411	0	411	13,049
DISS SOLID	22,470	0	22,470	1,665,188
CHLORIDE	3,204	0	3,284	60,785
SILICA	166	0	166	143,260
SUSP SOLID	2,257	0	2,257	22,932,347
OIL	9	0	9	8,654
SULPHUR	6,429	0	6,429	90,632
NH3	634	0	634	1,647
PHENOL	0	0	0	84
CYANIDE	21	0	21	77
ALUMINIUM	679	0	679	(58)
BORON	0	0	0	(24)
BROMINE	0	0	0	(15)
CADMIUM	2	0	2	11
CALCIUM	6,905	0	6,905	309,915
CHROMIUM	28	0	28	108
COPPER	33	0	33	552
FLUORIDE	85	0	85	2,400
IRON	742	0	742	32,628
LEAD	17	0	17	349
MAGNESIUM	1,689	0	1,689	178,832
MANGANESE	2,150	0	2,150	1,409
MERCURY	0	0	0	4
NICKEL	26	0	26	135
POTASSIUM	917	0	917	23,027
SODIUM	7,244	0	7,244	50,402
TITANIUM	0	0	0	(132)
ZINC	55	0	55	672
BOD	11,205	0	11,205	35,659

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985. IN METRIC TONNES.

DATE 03/10/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	34	0	34	251
NITROGEN	196	0	196	5,241
DISS SOLID	10,859	0	10,859	680,432
CHLORIDE	1,589	0	1,589	41,176
SILICA	79	0	79	55,914
SUSP SOLID	1,059	0	1,059	201,161
OIL	4	0	4	8,807
SULPHUR	3,108	0	3,108	84,074
NH3	307	0	307	552
PHENOL	0	0	0	37
CYANIDE	10	0	10	15
ALUMINUM	329	0	329	(10)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	0	1	18
CALCIUM	3,341	0	3,341	(2,296)
CHROMIUM	14	0	14	69
COPPER	16	0	16	64
FLUORIDE	41	0	41	1,760
IRON	356	0	356	7,269
LEAD	8	0	8	391
MAGNESIUM	817	0	817	33,378
MANGANESE	1,040	0	1,040	297
MERCURY	0	0	0	8
NICKEL	13	0	13	76
POTASSIUM	444	0	444	18,353
SODIUM	3,505	0	3,505	37,095
TITANIUM	0	0	0	(68)
ZINC	26	0	26	236
BOD	5,422	0	5,422	15,381

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985, IN METRIC TONNES.

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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	6	0	6	22 171
NITROGEN	48	0	48	1,976
DISS SOLID	3,029	0	3,029	369,862
CHLORIDE	448	0	448	21,828
SILICA	19	0	19	20,064
SUSP SOLID	216	0	216	24,286
OIL	1	0	1	5,043
SULPHUR	868	0	868	29,534
NH3	86	0	86	158
PHENOL	0	0	0	158
CYANIDE	3	0	3	0
ALUMINUM	93	0	93	(48)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	942	0	942	108,146
CHROMIUM	4	0	4	0
COPPER	4	0	4	4
FLUORIDE	12	0	12	449
IRON	91	0	91	535
LEAD	2	0	2	18
MAGNESIUM	230	0	230	33,013
MANGANESE	293	0	293	83
MERCURY	0	0	0	0
NICKEL	4	0	4	11
POTASSIUM	125	0	125	2,653
SODIUM	988	0	988	13,174
TITANIUM	0	0	0	(68)
ZINC	7	0	7	10
BOD	1,529	0	1,529	5,672

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1985, IN METRIC TONNES.

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REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	78	0	78	502 1,826
NITROGEN	1,076	0	1,076	23,288
DISS SOLID	80,998	0	80,998	3,221,929
CHLORIDE	12,124	0	12,124	333,773
SILICA	422	0	422	75,439
SUSP SOLID	3,615	0	3,615	110,881
OIL	34	0	34	24,246
SULPHUR	23,288	0	23,288	414,051
NH3	2,340	0	2,340	1,611
PHENOL	1	0	1	76
CYANIDE	76	0	76	3
ALUMINIUM	2,507	0	2,507	336
BORON	0	0	0	(1,714)
BROMINE	0	0	0	(1,045)
CADMIUM	7	0	7	14
CALCIUM	25,488	0	25,488	513,128
CHROMIUM	135	0	135	15
COPPER	75	0	75	7
FLUORIDE	313	0	313	2,453
IRON	2,224	0	2,224	19,989
LEAD	44	0	44	44
MAGNESIUM	6,235	0	6,235	163,349
MANGANESE	7,939	0	7,939	1,760
MERCURY	0	0	0	2
NICKEL	97	0	97	71
POTASSIUM	3,385	0	3,385	22,618
SODIUM	26,742	0	26,742	168,541
TITANIUM	0	0	0	(24)
ZINC	170	0	170	118
BOD	41,367	0	41,367	44,335

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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 1990. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	44	0	44	1,409
NITROGEN	327	0	327	12,964
DISS SOLID	17,753	0	17,753	1,660,471
CHLORIDE	2,615	0	2,615	60,116
SILICA	119	0	119	143,213
SUSP SOLID	1,481	0	1,481	22,931,573
OIL	18	0	18	8,663
SULPHUR	5,088	0	5,088	89,291
NI3	636	0	636	1,649
PHENOL	0	0	0	84
CYANIDE	21	0	21	77
ALUMINUM	681	0	681	(55)
BORON	0	0	0	(24)
BROMINE	0	0	0	(15)
CADMIUM	2	0	2	10
CALCIUM	6,927	0	6,927	309,938
CHROMIUM	25	0	25	104
COPPER	23	0	23	542
FLUORIDE	86	0	86	2,400
IRON	557	0	557	32,442
LEAD	13	0	13	344
MAGNESIUM	1,345	0	1,345	178,488
MANGANESE	2,157	0	2,157	1,416
MERCURY	0	0	0	4
NICKEL	21	0	21	130
POTASSIUM	920	0	920	23,029
SODIUM	7,268	0	7,268	50,426
TITANIUM	0	0	0	(132)
ZINC	41	0	41	659
BCD	11,243	0	11,243	35,696

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990, IN METRIC TONNES.

DATE 03/10/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	22	0	22	239
NITROGEN	162	0	162	5,206
DISS SOLID	8,860	0	8,860	678,433
CHLORIDE	1,306	0	1,306	40,893
SILICA	58	0	58	55,894
SUSP SOLID	724	0	724	200,824
OIL	9	0	9	8,813
SULPHUR	2,539	0	2,539	83,506
NHS	318	0	318	563
PHENOL	0	0	0	37
CYANIDE	10	0	10	15
ALUMINUM	340	0	340	2
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	0	1	18
CALCIUM	3,460	0	3,460	(2,177)
CHROMIUM	13	0	13	68
COPPER	12	0	12	59
FLUORIDE	42	0	42	1,762
IRON	276	0	276	7,190
LEAD	6	0	6	389
MAGNESIUM	671	0	671	33,232
MANGANESE	1,077	0	1,077	334
MERCURY	0	0	0	8
NICKEL	11	0	11	74
POTASSIUM	459	0	459	18,369
SODIUM	3,630	0	3,630	37,220
TITANIUM	0	0	0	(68)
ZINC	21	0	21	230
BOD	5,615	0	5,615	15,575

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/10/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	4	0	4	21 170
NITROGEN	45	0	45	1,973
DISS SOLID	2,677	0	2,677	369,510
CHLORIDE	398	0	398	21,777
SILICA	16	0	16	20,060
SUSP SOLID	174	0	174	24,243
OIL	3	0	3	5,044
SULPHUR	769	0	769	29,435
NI3	96	0	96	168
PHENOL	0	0	0	158
CYANIDE	3	0	3	1
ALUMINUM	104	0	104	(37)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADIUM	0	0	0	3
CALCIUM	1,053	0	1,053	108,257
CHROMIUM	4	0	4	(1)
COPPER	3	0	3	4
FLUORIDE	13	0	13	450
IRON	79	0	79	524
LEAD	2	0	2	18
MAGNESIUM	204	0	204	32,987
MANGANESE	328	0	328	118
MERCURY	0	0	0	0
NICKEL	4	0	4	10
POTASSIUM	140	0	140	2,668
SODIUM	1,104	0	1,104	13,290
TITANIUM	0	0	0	(68)
ZINC	6	0	6	9
BOD	1,708	0	1,708	5,851

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 1990. IN METRIC TONNES.

DATE 03/10/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	69	0	69	573 1,817
NITROGEN	1,033	0	1,033	23,246
DISS SOLID	67,791	0	67,791	3,208,721
CHLORIDE	10,138	0	10,138	331,788
SILICA	362	0	362	75,378
SUSP SOLID	3,260	0	3,260	110,525
OIL	71	0	71	24,284
SULPHUR	19,487	0	19,487	410,251
NI3	2,465	0	2,465	1,736
PHENOL	1	0	1	76
CYANIDE	79	0	79	6
ALUMINIUM	2,642	0	2,642	470
BORON	0	0	0	(1,714)
BROMINE	0	0	0	(1,045)
CADMIUM	5	0	5	14
CALCIUM	26,852	0	26,852	514,492
CHROMIUM	113	0	113	(6)
COPPER	64	0	64	(4)
FLUORIDE	330	0	330	2,469
IRON	1,887	0	1,887	19,652
LEAD	37	0	37	38
MAGNESIUM	5,214	0	5,214	162,328
MANGANESE	8,364	0	8,364	2,185
MERCURY	0	0	0	2
NICKEL	81	0	81	55
POTASSIUM	3,566	0	3,566	22,799
SODIUM	28,174	0	28,174	169,972
TITANIUM	0	0	0	(24)
ZINC	144	0	144	91
BOD	43,581	0	43,581	46,550

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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 2000. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	12	0	12	1,377
NITROGEN	195	0	195	12,832
DISS SOLID	10,522	0	10,522	1,653,239
CHLORIDE	1,571	0	1,571	59,072
SILICA	58	0	58	143,153
SUSP SOLID	568	0	568	22,930,658
OIL	23	0	23	8,668
SULPHUR	3,024	0	3,024	87,227
NH3	517	0	517	1,529
PHENOL	0	0	0	84
CYANIDE	16	0	16	73
ALUMINUM	553	0	553	(184)
BORON	0	0	0	(24)
BROMINE	0	0	0	(15)
CADMIUM	1	0	1	10
CALCIUM	5,623	0	5,623	308,633
CHROMIUM	17	0	17	97
COPPER	10	0	10	529
FLUORIDE	69	0	69	2,384
IRON	300	0	300	32,185
LEAD	6	0	6	338
MAGNESIUM	808	0	808	177,952
MANGANESE	1,751	0	1,751	1,009
MERCURY	0	0	0	4
NICKEL	13	0	13	121
POTASSIUM	747	0	747	22,856
SODIUM	5,899	0	5,899	49,057
TITANIUM	0	0	0	(132)
ZINC	23	0	23	640
BOD	9,125	0	9,125	33,579

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/10/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	6	0	6	223
NITROGEN	103	0	103	5,147
DISS SOLID	5,503	0	5,503	675,077
CHLORIDE	822	0	822	40,409
SILICA	31	0	31	55,866
SUSP SOLID	297	0	297	200,399
OIL	12	0	12	8,815
SULPHUR	1,581	0	1,581	82,548
NH3	270	0	270	516
PHENOL	0	0	0	37
CYANIDE	9	0	9	14
ALUMINIUM	289	0	289	(49)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	1	0	1	18
CALCIUM	2,941	0	2,941	(2,696)
CHROMIUM	9	0	9	65
COPPER	5	0	5	54
FLUORIDE	36	0	36	1,756
IRON	157	0	157	7,070
LEAD	3	0	3	385
MAGNESIUM	423	0	423	32,984
MANGANESE	916	0	916	173
MERCURY	0	0	0	8
NICKEL	6	0	6	69
POTASSIUM	391	0	391	18,300
SODIUM	3,086	0	3,086	36,677
TITANIUM	0	0	0	(68)
ZINC	12	0	12	221
BOD	4,774	0	4,774	14,733

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/10/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	0	2	49 167
NITROGEN	33	0	33	1,961
DISS SOLID	1,786	0	1,786	368,619
CHLORIDE	266	0	266	21,647
SILICA	10	0	10	20,055
SUSP SOLID	96	0	96	24,166
OIL	4	0	4	5,045
SULPHUR	513	0	513	29,179
NH3	87	0	87	159
PHENOL	0	0	0	158
CYANIDE	3	0	3	1
ALUMINUM	94	0	94	(47)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	954	0	954	108,158
CHROMIUM	3	0	3	(2)
COPPER	2	0	2	3
FLUORIDE	12	0	12	449
IRON	50	0	50	495
LEAD	1	0	1	17
MAGNESIUM	137	0	137	32,919
MANGANESE	297	0	297	87
MERCURY	0	0	0	0
NICKEL	2	0	2	9
POTASSIUM	127	0	127	2,654
SODIUM	1,001	0	1,001	13,187
TITANIUM	0	0	0	(68)
ZINC	4	0	4	6
BOD	1,549	0	1,549	5,692

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2000. IN METRIC TONNES.

DATE 03/10/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	49	0	49	553,1797
NITROGEN	832	0	832	23,045
DISS SOLID	44,848	0	44,848	3,185,780
CHLORIDE	6,697	0	6,697	328,347
SILICA	248	0	248	75,265
SUSP SOLID	2,419	0	2,419	109,685
OIL	95	0	95	24,308
SULPHUR	12,888	0	12,888	403,652
NH3	2,201	0	2,201	1,472
PHENOL	1	0	1	76
CYANIDE	71	0	71	(2)
ALUMINUM	2,357	0	2,357	186
BORON	0	0	0	(1,714)
BROMINE	0	0	0	(1,045)
CADMIUM	4	0	4	12
CALCIUM	23,967	0	23,967	511,607
CHROMIUM	75	0	75	(45)
COPPER	44	0	44	(23)
FLUORIDE	294	0	294	2,434
IRON	1,277	0	1,277	19,042
LEAD	25	0	25	26
MAGNESIUM	3,444	0	3,444	160,558
MANGANESE	7,465	0	7,465	1,286
MERCURY	0	0	0	2
NICKEL	54	0	54	28
POTASSIUM	3,182	0	3,182	22,416
SODIUM	25,146	0	25,146	166,946
TITANIUM	0	0	0	(24)
ZINC	96	0	96	43
BOD	38,898	0	38,898	41,867

UPPER LAKES REFERENCE GROUP
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ZERO LOADINGS, 1985 POLICY
LOADINGS FOR 2010, IN METRIC TONNES.
REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	6	0	6	1,372
NITROGEN	132	0	132	12,769
DISS SOLID	5,194	0	5,194	1,647,912
CHLORIDE	773	0	773	58,274
SILICA	31	0	31	143,125
SUSP SOLID	343	0	343	22,930,434
OIL	23	0	23	8,668
SULPHUR	1,491	0	1,491	85,694
NH3	392	0	392	1,405
PHENOL	0	0	0	84
CYANIDE	13	0	13	68
ALUMINUM	419	0	419	(317)
BORON	0	0	0	(24)
BROMINE	0	0	0	(15)
CADMIUM	0	0	0	9
CALCIUM	4,264	0	4,264	307,275
CHROMIUM	9	0	9	80
COPPER	5	0	5	524
FLUORIDE	52	0	52	2,367
IRON	155	0	155	32,040
LEAD	3	0	3	335
MAGNESIUM	398	0	398	177,541
MANGANESE	1,328	0	1,328	586
MERCURY	0	0	0	4
NICKEL	6	0	6	114
POTASSIUM	566	0	566	22,676
SODIUM	4,474	0	4,474	47,632
TITANIUM	0	0	0	(132)
ZINC	12	0	12	629
BOD	6,921	0	6,921	31,374

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010, IN METRIC TONNES.

DATE 03/10/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	4	0	4	221
NITROGEN	72	0	72	5,116
DISS SOLID	2,825	0	2,825	672,399
CHLORIDE	420	0	420	40,008
SILICA	17	0	17	55,852
SUSP SOLID	186	0	186	200,288
OIL	13	0	13	8,816
SULPHUR	812	0	812	81,778
NI3	213	0	213	458
PHENOL	0	0	0	37
CYANIDE	7	0	7	13
ALUMINIUM	229	0	229	(110)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	17
CALCIUM	2,320	0	2,320	(3,317)
CHROMIUM	4	0	4	60
COPPER	3	0	3	51
FLUORIDE	29	0	29	1,748
IRON	85	0	85	6,997
LEAD	2	0	2	384
MAGNESIUM	216	0	216	32,777
MANGANESE	723	0	723	(21)
MERCURY	0	0	0	8
NICKEL	4	0	4	67
POTASSIUM	308	0	308	18,218
SODIUM	2,434	0	2,434	36,024
TITANIUM	0	0	0	(68)
ZINC	6	0	6	215
SD	3,765	0	3,765	13,724

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
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REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	1	0	1	17 866
NITROGEN	24	0	24	1,952
DISS SOLID	944	0	944	367,778
CHLORIDE	140	0	140	21,521
SILICA	5	0	5	20,050
SUSP SOLID	62	0	62	24,132
OIL	4	0	4	5,045
SULPHUR	271	0	271	28,937
NH3	71	0	71	143
PHENOL	0	0	0	158
CYANIDE	3	0	3	0
ALUMINUM	77	0	77	(64)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	3
CALCIUM	776	0	776	107,979
CHROMIUM	2	0	2	(4)
COPPER	1	0	1	2
FLUORIDE	10	0	10	446
IRON	28	0	28	473
LEAD	1	0	1	17
MAGNESIUM	72	0	72	32,854
MANGANESE	241	0	241	32
MERCURY	0	0	0	0
NICKEL	1	0	1	8
POTASSIUM	103	0	103	2,631
SODIUM	814	0	814	13,000
TITANIUM	0	0	0	(68)
ZINC	2	0	2	4
BOD	1,258	0	1,258	5,401

ENVIRONMENT CANADA. INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2010. IN METRIC TONNES.

DATE 03/10/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	31	0	31	535 1,779
NITROGEN	619	0	619	22,832
DISS SOLID	24,316	0	24,316	3,165,248
CHLORIDE	3,620	0	3,620	325,270
SILICA	145	0	145	75,162
SUSP SOLID	1,607	0	1,607	108,873
OIL	106	0	106	24,319
SULPHUR	6,983	0	6,983	397,747
NH3	1,833	0	1,833	1,104
PHENOL	1	0	1	76
CYANIDE	58	0	58	(14)
ALUMINUM	1,964	0	1,964	(208)
BORON	0	0	0	(1,714)
BROMINE	0	0	0	(1,045)
CAESIUM	2	0	2	10
CALCIUM	19,966	0	19,966	507,605
CHROMIUM	40	0	40	(79)
COPPER	26	0	26	(42)
FLUORIDE	246	0	246	2,384
IRON	724	0	724	18,490
LEAD	14	0	14	15
MAGNESIUM	1,862	0	1,862	158,975
MANGANESE	6,219	0	6,219	40
MERCURY	0	0	0	2
NICKEL	29	0	29	3
POTASSIUM	2,651	0	2,651	21,884
SODIUM	20,948	0	20,948	162,747
TITANIUM	0	0	0	(24)
ZINC	53	0	53	0
BCD	32,404	0	32,404	35,373

UPPER LAKES REFERENCE GROUP
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ZERO LOADINGS, 1985 POLICY

LOADINGS FOR 2020. IN METRIC TONNES.

REGION 1 WESTERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	3	0	3	1,368
NITROGEN	77	0	77	12,714
DISS SOLID	1,601	0	1,601	1,644,318
CHLORIDE	236	0	236	57,737
SILICA	12	0	12	143,106
SUSP SOLID	170	0	170	22,930,261
OIL	19	0	19	8,664
SULPHUR	459	0	459	84,662
NH3	260	0	260	1,274
PHENOL	0	0	0	84
CYANIDE	8	0	8	64
ALUMINUM	279	0	279	(458)
BORON	0	0	0	(24)
BROMINE	0	0	0	(15)
CADMIUM	0	0	0	9
CALCIUM	2,835	0	2,835	305,846
CHROMIUM	3	0	3	83
COPPER	2	0	2	521
FLUORIDE	35	0	35	2,350
IRON	55	0	55	31,940
LEAD	1	0	1	333
MAGNESIUM	122	0	122	177,265
MANGANESE	883	0	883	140
MERCURY	0	0	0	4
NICKEL	2	0	2	111
POTASSIUM	376	0	376	22,487
SODIUM	2,975	0	2,975	46,132
TITANIUM	0	0	0	(132)
ZINC	4	0	4	621
BOD	4,602	0	4,602	29,055

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020, IN METRIC TONNES.

DATE 03/10/76

REGION 2 SOUTHERN LAKE SUPERIOR

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	2	0	2	219
NITROGEN	44	0	44	5,089
DISS SOLID	912	0	912	670,485
CHLORIDE	134	0	134	39,721
SILICA	6	0	6	55,842
SUSP SOLID	97	0	97	200,198
OIL	11	0	11	8,814
SULPHUR	261	0	261	81,228
NH3	149	0	149	393
PHENOL	0	0	0	36
CYANIDE	4	0	4	10
ALUMINIUM	158	0	158	(179)
BORON	0	0	0	0
BROMINE	0	0	0	0
CADMIUM	0	0	0	17
CALCIUM	1,615	0	1,615	(4,022)
CHROMIUM	2	0	2	57
COPPER	1	0	1	49
FLUORIDE	20	0	20	1,739
IRON	32	0	32	6,945
LEAD	1	0	1	383
MAGNESIUM	69	0	69	32,630
MANGANESE	503	0	503	(240)
MERCURY	0	0	0	8
NICKEL	1	0	1	64
POTASSIUM	214	0	214	18,123
SODIUM	1,694	0	1,694	35,284
TITANIUM	0	0	0	(68)
ZINC	2	0	2	212
000	2,620	0	2,620	12,579

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION,
LOADINGS FOR 2020, IN METRIC TONNES.

DATE 03/10/76

REGION 3 NORTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	1	0	1	165
NITROGEN	15	0	15	1,944
DISS SOLID	323	0	323	367,157
CHLORIDE	48	0	48	21,427
SILICA	3	0	3	20,047
SUSP SOLID	34	0	34	24,104
OIL	4	0	4	5,045
SULPHUR	93	0	93	28,759
NH3	52	0	52	124
PHENOL	0	0	0	158
CYANIDE	2	0	2	(1)
ALUMINUM	57	0	57	(84)
BORON	0	0	0	0
BROMINE	0	0	0	0
BROMINE	0	0	0	3
CADMIUM	0	0	0	107,777
CALCIUM	573	0	573	(4)
CHROMIUM	1	0	1	1
COPPER	0	0	0	444
FLUORIDE	7	0	7	455
IRON	11	0	11	17
LEAD	0	0	0	32,807
MAGNESIUM	24	0	24	(32)
MANGANESE	178	0	178	0
MERCURY	0	0	0	7
NICKEL	0	0	0	2,604
POTASSIUM	77	0	77	12,787
SODIUM	601	0	601	(68)
TITANIUM	0	0	0	4
ZINC	1	0	1	5,072
BOD	930	0	930	

ENVIRONMENT CANADA, INLAND WATERS DIRECTORATE, ONTARIO REGION.
LOADINGS FOR 2020, IN METRIC TONNES.

DATE 03/10/76

REGION 4 SOUTHWESTERN LAKE HURON

PARAMETER	MUNICIPAL	INDUSTRIAL	MUN. + IND.	CALIBRATED TOTAL
PHOSPHORUS	14	0	14	519 1762
NITROGEN	399	0	399	22,612
DISS SOLID	8,240	0	8,240	3,149,171
CHLORIDE	1,214	0	1,214	322,864
SILICA	61	0	61	75,077
SUSP SOLID	877	0	877	108,142
OIL	97	0	97	24,310
SULPHUR	2,362	0	2,362	393,125
NH3	1,340	0	1,340	611
PHENOL	1	0	1	76
CYANIDE	43	0	43	(30)
ALUMINUM	1,436	0	1,436	(736)
BORON	0	0	0	(1,714)
BROMINE	0	0	0	(1,045)
CADMIUM	1	0	1	8
CALCIUM	14,595	0	14,595	502,234
CHROMIUM	14	0	14	(106)
COPPER	11	0	11	(57)
FLUORIDE	179	0	179	2,318
IRON	282	0	282	18,047
LEAD	5	0	5	6
MAGNESIUM	625	0	625	157,739
MANGANESE	4,546	0	4,546	(1,633)
MERCURY	0	0	0	2
NICKEL	10	0	10	(16)
POTASSIUM	1,938	0	1,938	21,172
SODIUM	15,313	0	15,313	157,112
TITANIUM	0	0	0	(24)
ZINC	19	0	19	(34)
BOD	23,687	0	23,687	26,656

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