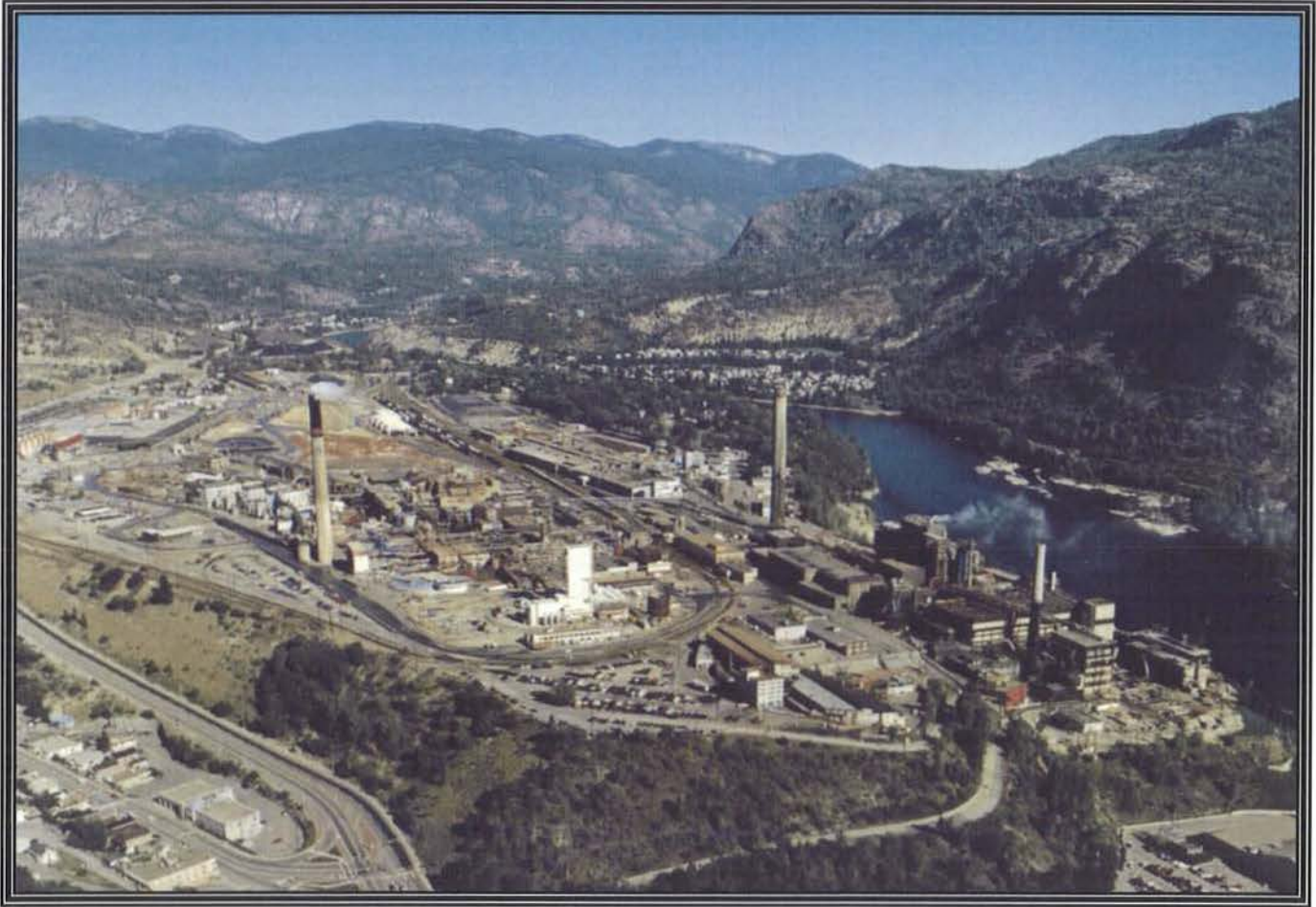




2001
Teck Cominco Metals Ltd.
Annual Environmental Permit Report
For the BC Ministry of Water, Land,
and Air Protection

Regional Manager
Environmental Protection
#401 - 333 Victoria Street
Nelson, B.C.
V1L 4K3

May 14, 2002

Attention: Mr. Carl Johnson, P. Eng.
Head, Industrial Section

Reference: Air Permits PA-02690, 02691 & 02692
Effluent Permits PE-5309 & PE-2753

Dear Sir:

In accordance with the Letters of Transmittal accompanying Ministry of Water, Land and Air Protection permits PA-02690, PA-02691 and PA-02692 and effluent permits PE-05309 and PE-02753, the 2001 annual report is submitted.

Included in this report are summaries of the permit required ambient air monitoring data, sulphur emissions, effluent monitoring data plus all stack emission data. Also included is historical data for effluent and stack releases and for ambient air quality.

Yours truly



G.J. Gawryletz
Group Leader, Environmental Monitoring
Teck Cominco Metals Ltd.

Attachments:

Reporting of **Non-detectable** data and loadings

Cominco is required to report to the ministry metal/gaseous loadings. This is determined by sample concentration multiplied by volume. When analytical methods reach their detection limits, extrapolation of the data is required to calculate a loading. When this occurs, Cominco uses one half the detection limit multiplied by the volume to calculate the loading value.

Section 1

Air Monitoring

Summary of Monitoring Results

Ambient SO₂ Concentrations

Sulphur Emissions

Production Curtailments

Air Permits PA-02690, PA-02691 & PA-02692

Sulphur/SO₂ Monitoring

Ambient SO₂ Monitoring

- There were no 24 hour results that exceeded permit limits.
- There were 3 continuous hour permit exceedances results (0.30 PPM for 3 continuous hours), these 3 exceedances occurred over one 5 hour period.
- There were 4 one hour target exceedances in 2001 compared to 10 in 2000.

Correspondences for these exceedances have been previously issued to the local ministry. Refer to May 2001 Teck Cominco's monthly report and letter dated November 9th 2001 to MWLAP regarding PA 2691.

The improvement in the 1 hour target exceedances can be attributed to Zinc and Lead Operations following their SO₂ control procedures, as well as the extended downtime of the #2 Lead Slag Fumer furnace.

Annual averages at all sites remained relatively static with slight decreases at all stations and all were well under the annual average permit limit of 0.03 PPM.

Sulphur/SO₂ Emissions

Sulphur emissions in 2001 were down from 2000. The tonnage decrease of sulphur emissions can be attributed to the reduction in operating hours due to the three month shutdown. The Lead stack showed an increase, this was a result of flue modifications to minimize corrosive conditions that were resulting in other environmental issues.

Total annual release of SO₂ remained under the proposed PA-02691 and PA-02692 permit limits.

2001 Ambient SO₂ Concentrations

Station	% Time in Compliance () # of excursions											
	Annual Average ppm (0.03 PPM)			Possible 365 samples 24 hr. limit (0.10 PPM)			Possible 7556 samples * 3 hr. limit (0.25 PPM)			Possible 8395 samples ** 1 hr. Target (0.34 PPM)		
	2001	2000	1999	2001	2000	1999	2001	2000	1999	2001	2000	1999
Genelle (Started June 95) ²	0.005	0.006	0.004	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)
Oasis ^o Decommissioned Sept 2000		0.008	0.009	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	99.99 (1)
Warfield ^o	0.007	0.015	0.009	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (3)	100 (0)	99.99 (3)	99.99 (3)
Downtown Trail ^o	0.008	0.009	0.012	100 (0)	100 (0)	100 (0)	100 (0)	100 (1)	100 (0)	100 (0)	99.99 (2)	100 (0)
West Trail (Started June 95) ²	0.005	0.012	0.011	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	99.99 (2)	100 (0)
Trail Hospital (Started July 95) ² Out of service May to Oct 1999	0.007	0.01	0.006	100 (0)	100 (0)	100 (0)	99.96 (3)	100 (0)	100 (0)	99.95 (4)	99.99 (1)	100 (0)
Butler Park ¹	0.009	0.015	0.008	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	99.99 (2)	99.99 (1)
Glenmerry ² Decommissioned Sept 2001	0.007	0.011	0.009	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	99.99 (1)
Columbia Gardens ³	0.008	0.014	0.006	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)
Northport ³	0.0004	0.002	0.002	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)	100 (0)
Total # of excursions				(0)	(0)	(0)	(3)	(1)	(3)	(4)	(10)	(6)

^o W.M.B. permit required stations

² Cominco station

¹ W.M.B. operated station

³ I.J.C. required stations

* 3hr rolling average based on the loss of 3 three hour periods per day around the calibration hour.

Therefore 365 x 21 = 7665 periods.

** 1hr averaged based on 23 hours per day x 365

Daily Sulphur Emissions

Sulphur emissions x 2 = SO₂ emissions

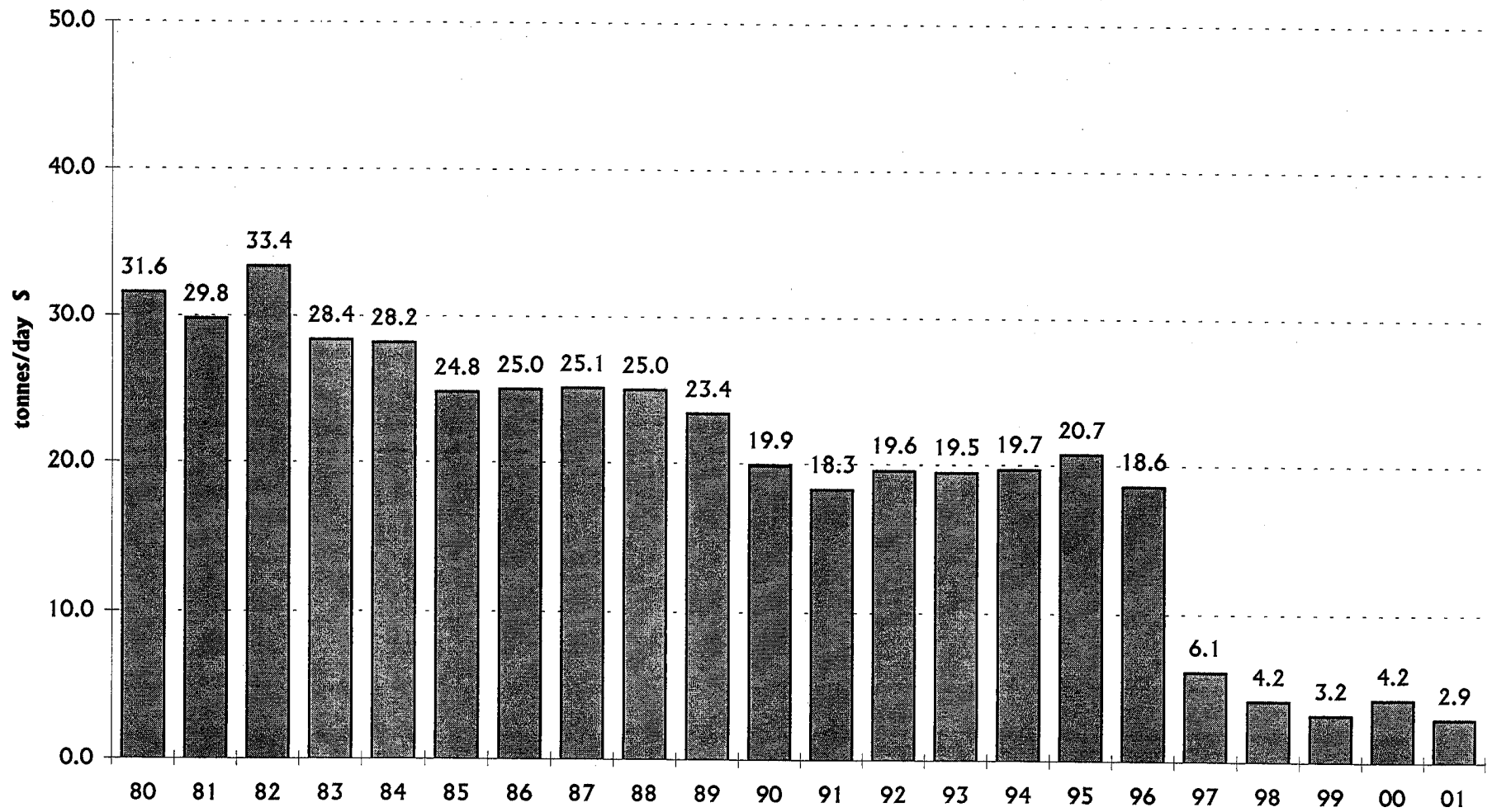
	Tonnes/Day		
	2001	2000	1999
Lead Furnace Baghouse Stack	0.56	0.04	0.01
#2 Slag Furnace Baghouse Stack	1.76	1.27	0.49
#3 Slag Furnace Baghouse Stack	0.65	0.39	N/A
Zinc Stack	2.01	2.57	2.70
Totals	4.98	4.27	3.20

	% of Total		
	2001	2000	1999
Lead Furnace Baghouse Stack	11.2%	0.9%	0.3%
#2 Slag Furnace Baghouse Stack	35.3%	29.7%	15.3%
#3 Slag Furnace Baghouse Stack	13.1%	9.13%	N/A
Zinc Stack	40.4%	60.2%	84.4%
Totals	100%	100%	100%

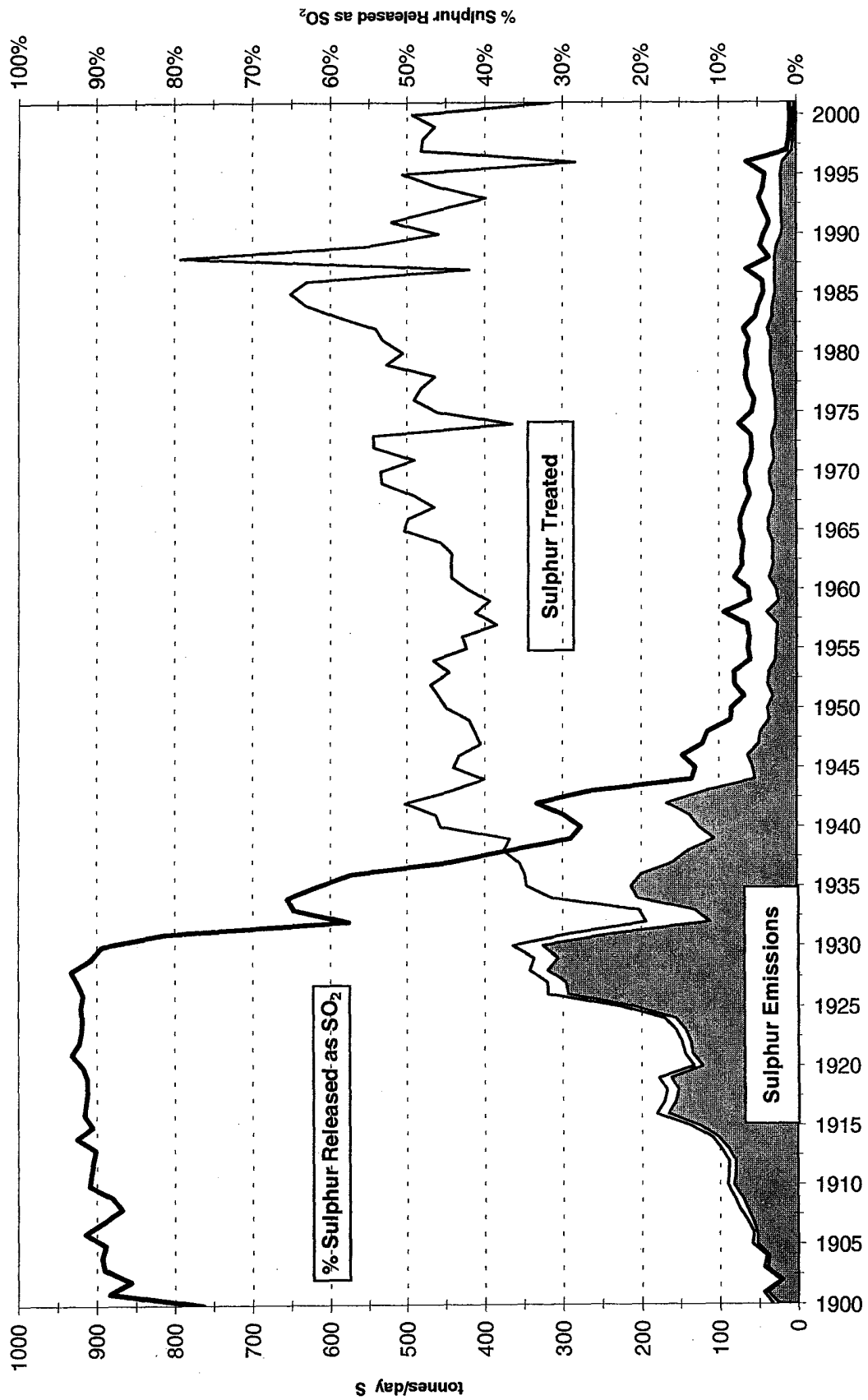
Annual SO₂ Emissions

PA-02691	tonnes/year		
	2001	2000	1999
Lead Furnace Baghouse Stack	261	29	388
#2 Slag Furnace Baghouse Stack	512	927	1043
#3 Slag Furnace Baghouse Stack	269	285	N/A
Sub Total	1042	1241	1431
Permit Limit *	13680	13680	13680
* Amendment pending from MOE.			
PA-02692			
Zinc Stack	1135	1876	1960
Permit Limit	2380	2380	2380
Total	2177	3117	3391

Cominco Limited - Trail Operations
Annual Average Daily Sulphur Emissions



**Cominco Limited - Trail Operations
Sulphur in Feed & Sulphur Emissions**



Ambient Air Monitoring

High Volume Particulate Samples with Metals Analyses

Flouride Monitoring by Impinger

Dustfall Monitoring with Metals Analyses

Flouride & Sulphation Plate Monitoring

Permits PA-02690, PA-02691 & PA-02692

Ambient Air Monitoring

Total Particulate & Metals by High Volume Filter Sampling

Metals results were all slightly lower than 2000.

Total Fluoride by Continuous Impinger Sampling

The Warfield and Downtown stations both continue to remain well under the provincial objective.

- The Oasis site was decommissioned in September 2000
 - The Glenmerry site was decommissioned in September 2001.
- As per agreement with MWLAP.

Total Particulate & Metals by Dustfall Jar Sampling

TSP concentration averages were under the B.C. Pollution Control Objectives for all permitted stations.

2001 TRAIL AREA AMBIENT AIR QUALITY

6th Day High Volume TSP Samples with Metals Analyses

B.C. Pollution Control Objectives for Airborne Particulates & Metals

	B.C. Objective Range Annual Geometric Mean
Total Suspended Particulates	60 - 70 µg/SM ³
Lead **	1.0 - 2.5 µg/SM ³
Zinc **	1.0 - 2.5 µg/SM ³
Cadmium **	0.05 - 0.3 µg/SM ³
Arsenic **	0.1 - 1.0 µg/SM ³

	B.C. Objective Range 24 Hr. Concentration
	150 - 200 µg/SM ³
	1.0 - 2.5 µg/SM ³
	1.0 - 2.5 µg/SM ³
	0.05 - 0.3 µg/SM ³
	0.1 - 1.0 µg/SM ³

Ambient Air Station	Annual Geometric Mean µg/SM ³			
Genelle	2001	2000	1999	1998
Particulates	19.90	23.03	20.70	25.97
Lead	0.07	0.10	0.11	0.09
Zinc	0.07	0.19	0.27	0.28
Cadmium	0.001	0.002	0.003	0.01
Arsenic	0.003	0.007	0.009	0.01

Number and (%) of results above upper objective value			
2001	2000	1999	1998
0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (1.68%)
0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
0 (0.00%)	1 (1.69%)	0 (0.00%)	0 (0.00%)
0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
0 (0.00%)	1 (1.69%)	1 (1.72%)	0 (0.00%)

West Trail	2001	2000	1999	1998
Particulates	18.73	24.7	20.93	21.3
Lead	0.04	0.20	0.21	0.14
Zinc	0.21	0.54	0.55	0.50
Cadmium	0.003	0.007	0.010	0.01
Arsenic	0.005	0.011	0.016	0.02

2001	2000	1999	1998
0 (0.00%)	1 (1.66%)	0 (0.00%)	0 (0.00%)
0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (3.22%)
1 (1.64%)	4 (6.67%)	1 (1.72%)	6 (9.68%)
0 (0.00%)	1 (1.66%)	0 (0.00%)	0 (0.00%)
0 (0.00%)	1 (1.66%)	0 (0.00%)	1 (1.61%)

*** Oasis	2001	2000	1999	1998
Particulates	n/a	18.5	23.62	18.1
Lead	n/a	0.10	0.17	0.13
Zinc	n/a	0.24	0.37	0.32
Cadmium	n/a	0.003	0.006	0.01
Arsenic	n/a	0.009	0.016	0.02

2001	2000	1999	1998
n/a	0 (0.00%)	1 (1.72%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	5 (8.33%)
n/a	2 (4.87%)	0 (0.00%)	0 (0.00%)
n/a	1 (2.43%)	0 (0.00%)	0 (0.00%)
n/a	2 (4.87%)	3 (5.16%)	1 (1.66%)

*** Warfield	2001	2000	1999	1998
Particulates	n/a	26.0	20.42	25.3
Lead	n/a	0.10	0.10	0.11
Zinc	n/a	0.23	0.26	0.33
Cadmium	n/a	0.003	0.004	0.01
Arsenic	n/a	0.006	0.007	0.01

2001	2000	1999	1998
n/a	2 (4.87%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	1 (1.72%)	1 (1.66%)
n/a	1 (2.43%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)

*** Downtown Trail	2001	2000	1999	1998
Particulates	n/a	26.7	25.87	25.7
Lead	n/a	0.30	0.30	0.21
Zinc	n/a	0.90	0.92	0.78
Cadmium	n/a	0.010	0.013	0.01
Arsenic	n/a	0.015	0.020	0.01

2001	2000	1999	1998
n/a	2 (4.87%)	0 (0.00%)	0 (0.00%)
n/a	1 (2.43%)	0 (0.00%)	3 (4.92%)
n/a	6 (14.63%)	10 (17.20%)	7 (11.59%)
n/a	4 (9.76%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	1 (1.72%)	1 (1.64%)

*** Glenmerry	2001	2000	1999	1998
Particulates	n/a	28.1	24.53	26.2
Lead	n/a	0.20	0.21	0.19
Zinc	n/a	0.65	0.52	0.27
Cadmium	n/a	0.007	0.008	0.01
Arsenic	n/a	0.018	0.019	0.01

2001	2000	1999	1998
n/a	2 (4.87%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)
n/a	2 (4.87%)	3 (5.16%)	6 (9.84%)
n/a	1 (2.43%)	0 (0.00%)	0 (0.00%)
n/a	1 (2.43%)	1 (1.72%)	1 (1.64%)

*** Columbia Gardens	2001	2000	1999	1998
Particulates	n/a	30	26.48	26.2
Lead	n/a	0.20	0.16	0.16
Zinc	n/a	0.79	0.80	0.90
Cadmium	n/a	0.007	0.007	0.01
Arsenic	n/a	0.008	0.010	0.01

2001	2000	1999	1998
n/a	1 (2.50%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	2 (3.44%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	1 (1.72%)	0 (0.00%)

*** Northport Wa.	2001	2000	1999	1998
Particulates	n/a	24.6	21.6	17.0
Lead	n/a	0.03	0.03	0.03
Zinc	n/a	0.06	0.07	0.06
Cadmium	n/a	0.001	0.001	0.01
Arsenic	n/a	0.004	0.004	0.01

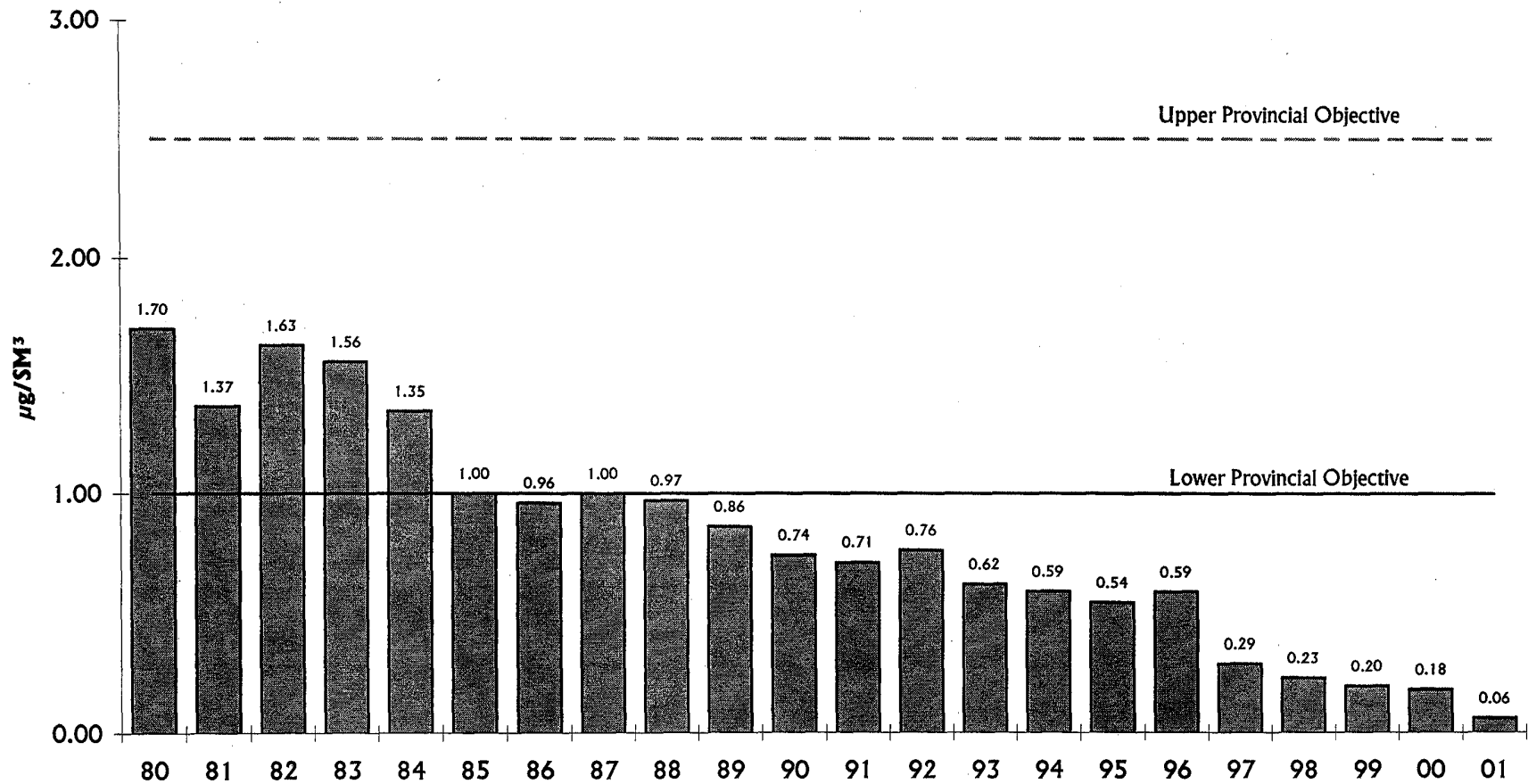
2001	2000	1999	1998
n/a	2 (4.87%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)
n/a	0 (0.00%)	0 (0.00%)	0 (0.00%)

** No period defined for metals objectives

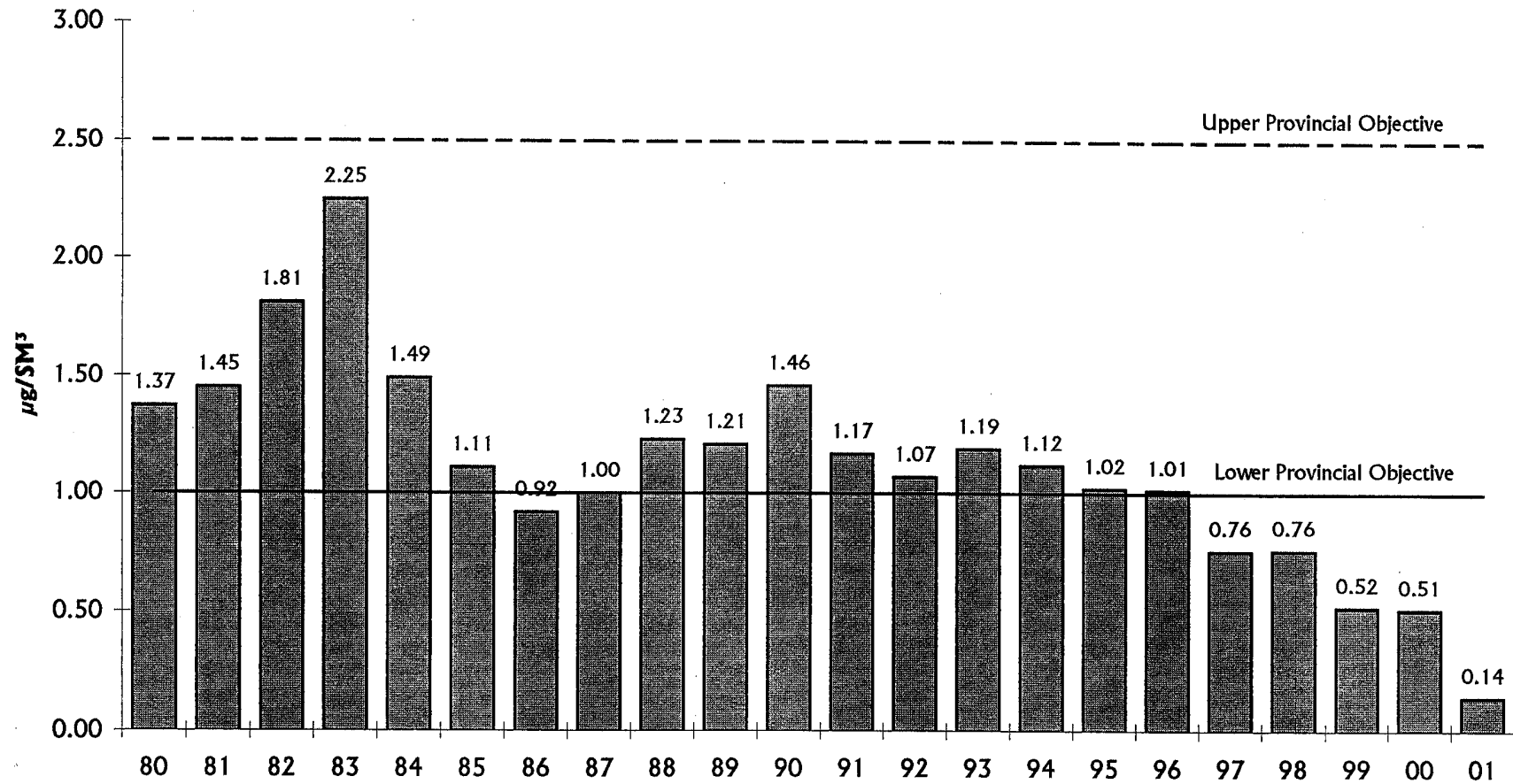
W/T & Genelle based on 61 NAPS days

***All other stations suspended Hi-Vol sampling (03 Sept 2000)

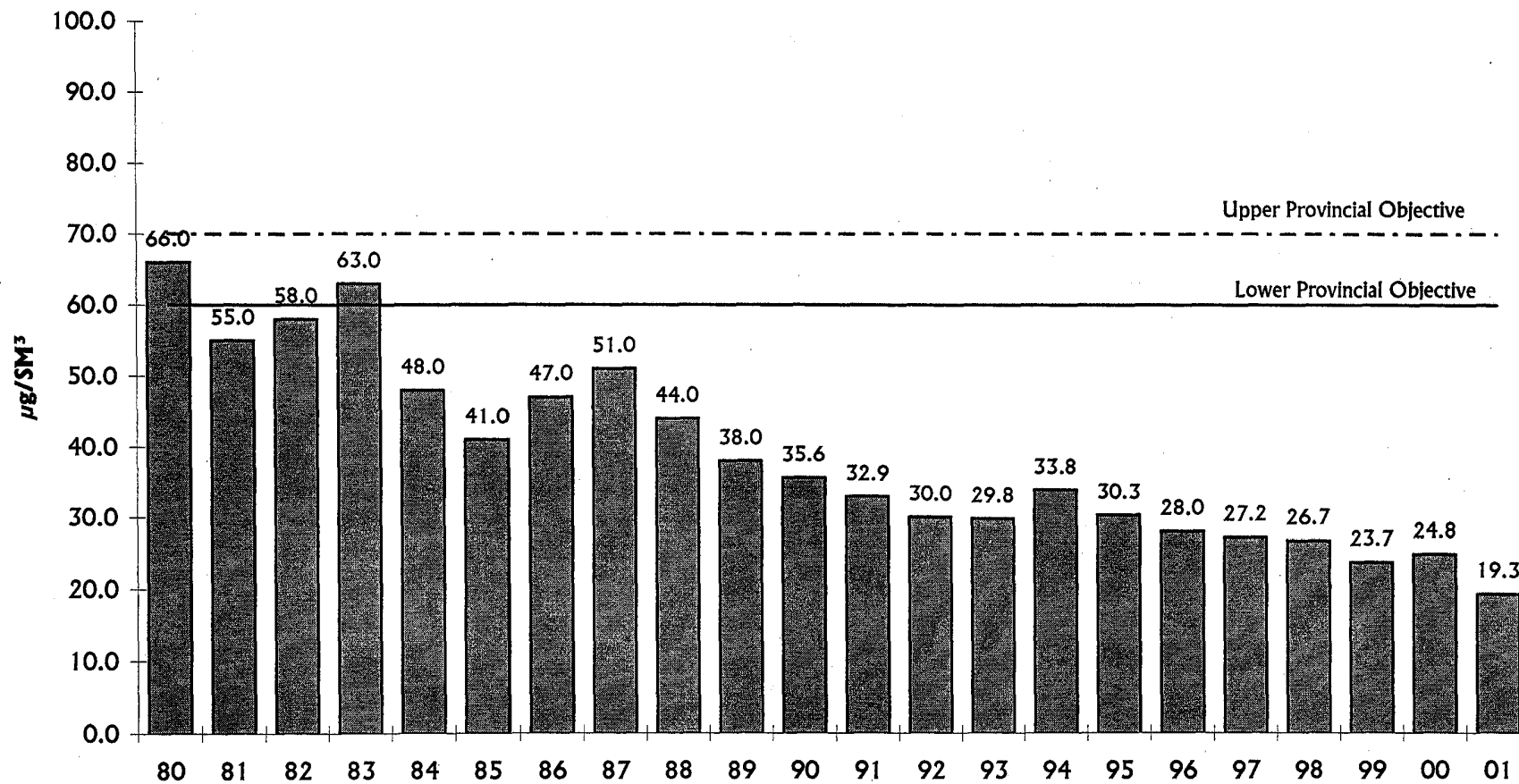
**Trail Area Ambient Air Quality
Historical Lead Averages (Geometric Mean)
Genelle and West Trail**



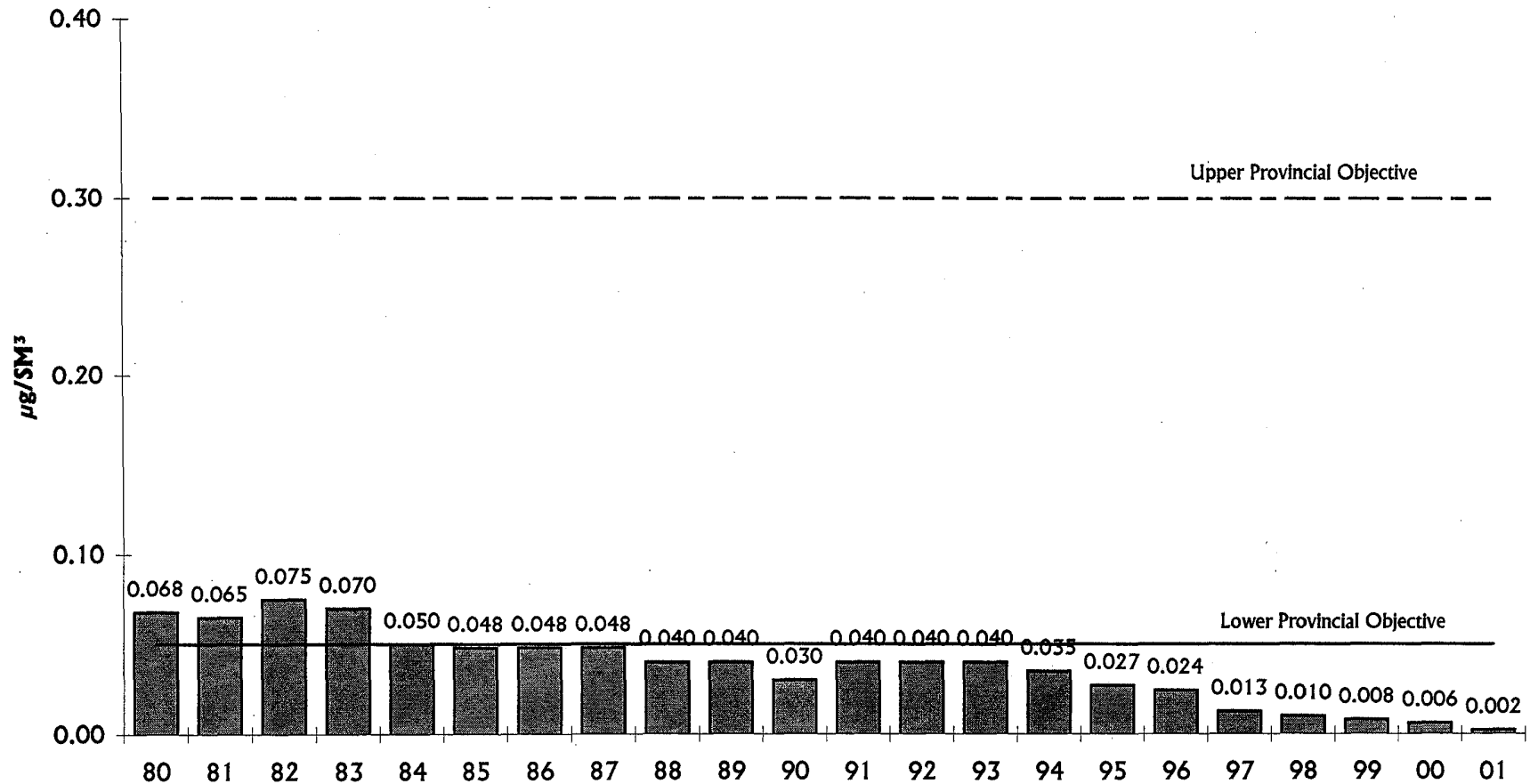
**Trail Area Ambient Air Quality
Historical Zinc Averages (Geometric Mean)
Genelle and West Trail**



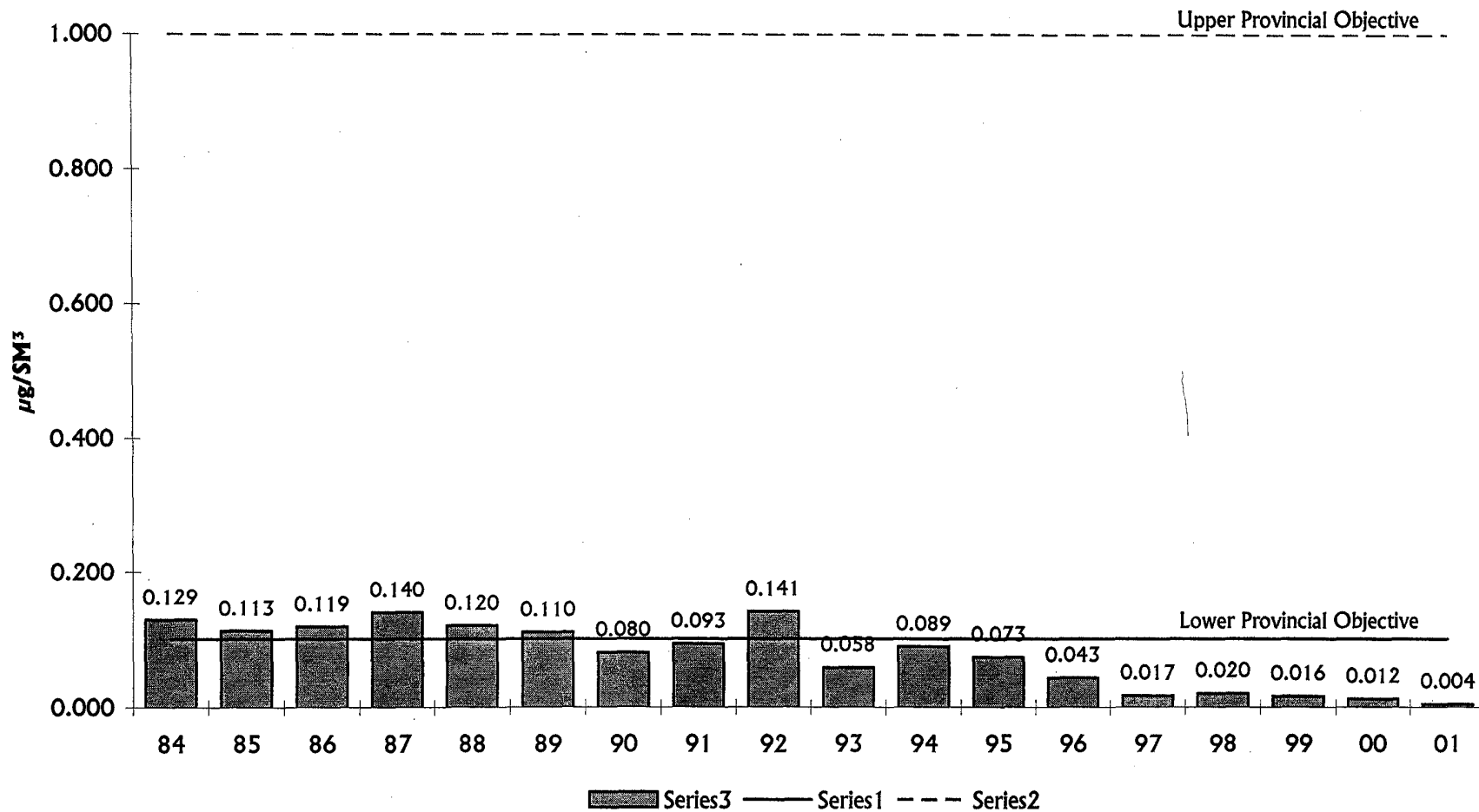
**Trail Area Ambient Air Quality
Historical Total Particulate Averages (Geometric Mean)
Genelle and West Trail**



**Trail Area Ambient Air Quality
Historical Cadmium Averages (Geometric Mean)
Genelle and West Trail**



**Trail Area Ambient Air Quality
Historical Arsenic Averages (Geometric Mean)
Genelle and West Trail**



2001 TRAIL AREA AMBIENT AIR DUSTFALL MONITORING

B.C. Pollution Control Objective Range 1.7 - 2.9 mg/dm²/day

Location	Average <-----mg/dm ² /day----->			Range <-----mg/dm ² /day----->			% Compliance () # > Objective		
	2001	2000	1999	2001	2000	1999	2001	2000	1999
Birchbank	0.48	0.31	0.36	0.14-1.97	0.17-0.42	0.14-0.88	92 (1)	100 (0)	100 (0)
Oasis	0.51	1.08	0.51	0.09-1.16	0.21-5.94	0.24-1.13	100 (0)	90 (1)	100 (0)
Sunningdale	0.63	0.61	0.48	0.28-1.60	0.17-1.66	0.28-0.98	100 (0)	100 (0)	100 (0)
Upper Duncan Flats	0.46	0.55	0.54	0.19-0.79	0.29-0.90	0.35-0.88	100 (0)	100 (0)	100 (0)
Lower Duncan Flats (Stoney Creek)	1.49	1.39	1.40	0.42-4.69	0.28-3.52	0.47-3.76	75 (3)	83 (2)	83 (2)
Warfield	0.44	0.45	0.53	0.21-0.90	0.21-0.66	0.19-1.09	100 (0)	100 (0)	100 (0)
Trail Hospital	0.82	0.70	0.60	0.26-1.76	0.24-1.18	0.28-1.13	92 (1)	100 (0)	100 (0)
Downtown Trail	0.68	0.73	0.67	0.25-1.11	0.50-0.92	0.40-0.87	100 (0)	100 (0)	100 (0)
Daniel Street	0.87	0.80	1.13	0.29-2.19	0.31-1.66	0.26-4.59	92 (1)	100 (0)	92 (1)
Glenmerry	0.82	0.75	0.81	0.24-1.62	0.35-1.56	0.19-2.86	100 (0)	100 (0)	100 (0)
Binns Street 242	0.94	*	*	0.35-2.48	*	*	100 (0)	*	*
Columbia Avenue 1428	1.59	*	*	0.69-5.55	*	*	100 (0)	*	*
Montrose	2.75	*	*	0.28-20.39	*	*	100 (0)	*	*
Northport	0.47	*	*	0.23-1.07	*	*	100 (0)	*	*
Shavers Bench 8th Ave	0.86	*	*	0.46-1.35	*	*	100 (0)	*	*
Tadanac	0.96	*	*	0.15-1.90	*	*	100 (0)	*	*
Trimac	0.78	*	*	0.24-1.41	*	*	100 (0)	*	*

* These sites added, as recommended by the Trail Lead Task Force, at the end of 2000.

2001 TRAIL AREA AMBIENT TOTAL FLUORIDE

7 Day Impinger samples

B.C. Pollution Control Objectives:

Total Fluoride Annual Arithmetic Mean Range 0.1 - 2.0 $\mu\text{g}/\text{SM}^3$

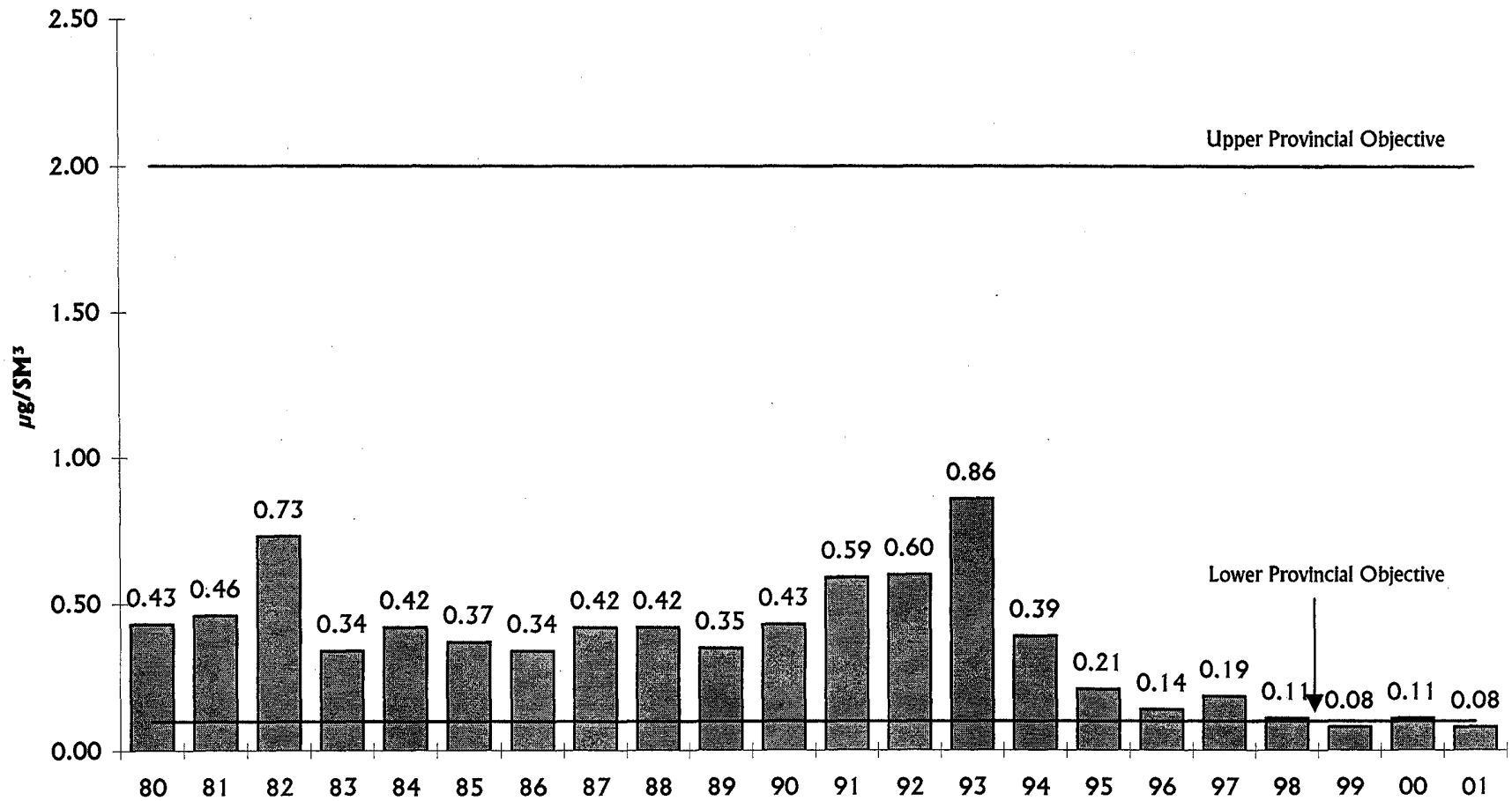
Ambient Air Station	Total Fluoride Annual Arithmetic Mean			
	<----- $\mu\text{g}/\text{SM}^3$ ----->			
Oasis	2001	2000	1999	1998
Impinger out of service Sept 2000	N/A	0.11	0.08	0.09

Warfield	2001	2000	1999	1998
	0.05	0.06	0.05	0.08

Downtown Trail	2001	2000	1999	1998
	0.10	0.11	0.08	0.12

Glenmerry	2001	2000	1999	1998
Impinger out of service Sept 2001	0.11	0.14	0.11	0.12

Trail Area Ambient Air Quality
Historical Total Fluoride Averages by Impinger Sampling (Arithmetic Mean)
Warfield, Glenmerry, and Downtown Trail



Stack Emission Monitoring

Stack Emission Monitoring - Air Permit PA-02691

Lead Sintering Stack (S-1)

For emergency, and start-up/shutdown of the Kivcet Furnace, not used for normal operations.

Lead Furnaces Baghouse Stack (S-32)

All results under permit limits, except for the May and June tests which both exceeded the permit limit for Total Particulate Concentration. Please refer to the May and June monthly reports issued to the Ministry of the Environment for a detailed explanation.

Slag Fuming Furnace Baghouse Stack (S-40)

All results were under the permit limits.

Slag Fuming Furnace Baghouse Stack (E239038)

There are no permit limits on this stack. All results are below our internal targets.

A permit amendment has been requested for this stack.

Refineries Scrubber Stack (R-1A)

All results were under the permit limits.

Lead Alloys Rotary Furnace Baghouse Stack (R-2A)

All results were under the permit limits.

Copper Products Flash Tank Scrubber (R-3A)

All results were under the permit limits.

Copper Products Ventilation Scrubber (R-4A)

All results were under the permit limits.

Arsenic Distillation Baghouse Stack (R-14)

The Arsenic Distillation process did not operate in 2001.

Date: 5/10/02

Teck Cominco Metals Ltd. Trail Operations
Lead Smelter Stack (S-32) Compliance Monitoring
Waste Management Branch Permit PA-02691

Sample Date	Stand Volume SM3/Min	T/Part mg/SM3	T/Pb mg/SM3	T/Zn mg/SM3	T/Cd mg/SM3	T/As mg/SM3	T/Sb mg/SM3	Gas/F mg/SM3	T/Hg mg/SM3
18-Jan-01	6812	0.561	0.163	0.194	0.008	0.041	0.021	0.033	.0010
16-Feb-01	9784	4.413	0.365	0.492	0.023	0.418	0.149	0.168	.0010
27-Mar-01	8378	11.030	0.240	0.200	0.011	0.017	0.008	0.027	.0106
23-Apr-01	9102	9.640	0.854	0.604	0.032	0.048	0.111	0.030	.0109
10-May-01	9611	27.120	0.137	4.055	0.008	0.156	1.259	0.035	.0018
19-Jun-01	7997	34.790	4.290	2.570	0.068	0.190	0.028	0.058	.0030
19-Nov-01	7507	14.367	0.664	10.663	0.019	0.033	0.011	0.020	.0016
06-Dec-01	8147	6.333	0.462	0.056	0.008	0.148	0.166	0.024	.0035

Date: 5/10/01

Teck Cominco Metals Ltd. Trail Operations
Fuming Baghouse Stack (S-40) Compliance Monitoring
Waste Management Branch Permit PA-02691

Sample Date	Volume SM3/Min	T/As mg/SM3	T/Cd mg/SM3	T/Hg mg/SM3	T/Part mg/SM3	T/Pb mg/SM3	T/Sb mg/SM3	T/Zn mg/SM3
04-Jan-01	4727	0.183	0.016	.0009	12.038	1.894	0.145	3.650
07-Feb-01	4782	0.145	0.043	.0029	14.605	2.076	0.068	5.674
24-Oct-01	5230	0.194	0.004	.0140	4.206	0.323	0.030	1.135
09-Nov-01	4858	0.018	0.004	.0084	3.481	0.325	0.025	1.203
04-Dec-01	4743	0.020	0.002	.0014	2.090	0.222	0.018	0.452

Teck Cominco Metals Ltd. Trail Operations
 Fuming Baghouse Stack (E239038) Compliance Monitoring
 Waste Management Branch Permit PA-02691 Date: 5/10/02

Sample Date	Volume SM3/Min	T/As mg/SM3	T/Cd mg/SM3	T/Hg mg/SM3	T/Part mg/SM3	T/Pb mg/SM3	T/Sb mg/SM3	T/Zn mg/SM3
26-Feb-01	3853	0.107	0.001	.6680	0.850	0.040	0.006	0.180
06-Mar-01	4256	0.004	0.001	.0690	0.688	0.015	0.001	0.065
02-Apr-01	2439	0.029	0.001	1.2850	1.127	0.011	0.005	0.036
03-May-01	3625	0.171	0.004	.1190	0.398	0.014	0.020	0.035
05-Jun-01	3034	0.058	0.001	.6680	1.125	0.030	0.004	0.146
13-Nov-01	3784	0.039	0.004	.0130	2.629	0.430	0.025	1.135
05-Dec-01	3172	0.040	0.005	.0011	3.302	0.423	0.008	1.410

Teck Cominco Metals Ltd. Trail Operations
Refineries Scrubber Stack (R-1A) Compliance Monitoring
Waste Managment Branch Permit PA-02691

Date: 5/10/02

Sample Date	Stand Volume SM3/min	T/Part mg/sm3	T/As mg/sm3	T/Pb mg/sm3	T/Sb mg/sm3	Gas/F mg/SM3
05-Jan-01	3938	5.977	0.044	0.147	0.008	0.018
09-Feb-01	3774	15.333	2.761	0.086	0.033	0.259
05-Mar-01	3672	4.363	0.018	0.035	0.058	0.016
03-Apr-01	3501	2.909	0.211	0.090	0.039	0.026
08-May-01	3458	11.276	0.106	0.139	0.186	0.561
11-Jun-01	3599	2.932	0.196	0.166	0.047	0.903
21-Nov-01	3935	2.829	0.125	0.108	0.021	0.025
12-Dec-01	3821	4.979	0.087	0.039	0.070	0.001

Cominco Ltd. Trail Operations Short Rotary Furnace Stack
(R-2A) Compliance Monitoring
Waste Managment Branch Permit PA-02691

Date: 5/10/02

Sample Date	Stand Volume SM3/min	T/Part mg/sm3	T/As mg/sm3	T/Pb mg/sm3	T/Sb mg/sm3	Gas F mg/SM3
20-Mar-01	821	0.371	0.052	0.012	0.027	0.081
21-Jun-01	827	3.486	0.266	0.160	0.093	0.219
11-Aug-01	829	3.486	0.266	0.162	0.093	0.219

Teck Cominco Metals Ltd. Trail Operations
Copper Flash Tank Scrubber (R-3A) Compliance Monitoring
Waste Management Branch Permit PA-02691

Date: 5/10/02

Sample Date	Stand Volume sm3/min	T/As mg/sm3	T/As kg/day	T/Cu mg/sm3	T/Cu kg/day	T/Part mg/sm3	T/Part kg/day	T/Pb mg/sm3	T/Pb kg/day
23-Jan-01	43	0.062	0.004	0.050	0.003	2.080	0.13	0.017	0.001
18-Apr-01	38	0.133	0.007	0.189	0.010	3.881	0.21	0.009	0.001
14-Nov-01	37	0.062	0.003	0.427	0.023	5.681	0.31	0.017	0.001

Teck Cominco Metals Ltd. Trail Operations
Copper Ventilation Scrubber (R-4A) Compliance Monitoring
Waste Managment Branch Permit PA-02691

Date: 5/10/02

Sample Date	Stand Volume sm3/min	T/As mg/sm3	T/As kg/day	T/Cu mg/sm3	T/Cu kg/day	T/Part mg/sm3	T/Part kg/day	T/Pb mg/sm3	T/Pb kg/day
23-Jan-01	85	0.031	0.004	0.066	0.008	0.731	0.09	0.016	0.002
18-Apr-01	114	0.111	0.018	0.234	0.038	1.851	0.30	0.006	0.001
14-Nov-01	129	0.003	0.001	0.200	0.037	1.293	0.24	0.004	0.001

Stack Emission Monitoring - Air Permit PA-02692

Main Zinc Stack (Z-1)

All results were under the permit limits.

Zinc Melting Plant Baghouse Stack (EM-1)

All results were under the permit limits.

Zinc Melting Plant Atomized Zinc Dust Stack (EM-3)

All emission results under permit limits. The Standard volume exceeded permit limit of 170 sm³/minute, actual reading was 180sm³/minute. Restricting the volume while ensuring adequate ventilation corrected this problem.

Teck Cominco Metals Ltd. Trail Operations
Zinc Stack (Z-1) Compliance Monitoring
Waste Management Branch Permit PA-02692

Date: 5/10/02

Sample Date	Stand Volume SM3/min	T/Cd mg/sm3	T/Hg mg/sm3	T/Part mg/sm3	T/Pb mg/sm3	T/Zn mg/sm3	T/NH3/N mg/sm3
08-Jan-01	3795	0.006	.0340	21.62	0.108	0.214	2.130
01-Feb-01	3838	0.003	.0634	15.96	0.039	0.157	6.868
19-Mar-01	2608	0.004	.2246		0.046	0.230	5.087
04-Apr-01	3376	0.004	.0681	44.90	0.023	0.349	3.502
04-May-01	3566	0.002	.0687	19.13	0.008	0.089	2.571
01-Jun-01	3709	0.003	.0334	38.86	0.024	0.173	3.664
15-Oct-01	2894	0.005	.6576	59.34	0.052	0.357	9.975
02-Nov-01	3670	0.003	.0460	21.04	0.037	0.253	3.304
07-Dec-01	4392	0.003	.0874	33.63	0.419	0.209	5.239

Date: 5/10/02

Teck Cominco Metals Ltd. Trail Operations
E & M Zinc Main Stack (EM-1) Compliance Monitoring
Waste Management Branch Permit PA-02692

Sample Date	Stand Volume SM3/min	T/Part mg/sm3	T/Zn mg/sm3
29-Nov-01	1950	0.771	0.178

Teck Cominco Metals Ltd. Trail Operations
E & M Zinc Atomizer Stack (EM-3)
Compliance Monitoring
Waste Management Branch Permit PA-02692

Date: 5/10/02

Sample Date	Stand Volume SM3/min	T/Part mg/sm3	T/Zn mg/sm3
23-Feb-01	180	48.66	34.99

Stack Emission Monitoring - Air Permit PA-02690

Ammonia Sulphate Plant:

Oslo Vent (W-1), Centrifuge Vent(W-2), Dustabator (W-3), and #1 Dryer (W-4)

All results were under their permit limits.

Fertilizer Storage Plant:

#1 Mill (W-6) and #11 Mill (W-8)

The above sources were under their permit limits.

A permit amendment requesting a wording correction to better reflect that each source has a stack and requires separate permit limits.

#2 Mill (W-7) and #13 Mill (W-10), and #14 Mill (W-12)

All results were under their permit limits.

Granular Ammonium Sulphate Plant:

Gas Cooler (W-46), Gas Baghouse (W-70), Gas Scrubber (W-71)

All results were under their permit limits except for the Granular baghouse (W-70), and the Granular plant Scrubber Stack (W-71), both of which exceeded the permit limit for Total Particulate.

Following these tests, an inspection was performed on the baghouse, faulty bags were replaced, followed by a stack test, which results were 78.3 mg/sm³, well below permit limits. Maintenance was performed on the Scrubber, followed by a stack tests, which results were 33.5 mg/sm³, well below permit limits.

TeckCominco Metals Ltd.
 Trail Fertilizer Operations Emission Tests - 2001
 Waste Management Branch Permit PA-02690

Ammonium Sulphate Plant

W-1 Oslo Vent	Volume SM ³ /min.	Total Particulate	
		mg/SM ³	kg/24Hrs.
Permit Limits	226	115	
WMB Frequency	A	A	
Not operational in 2001	n/a	n/a	n/a

W-2 Centrifuge Vent	Volume SM ³ /min.	Total Particulate	
		mg/SM ³	kg/24Hrs.
Permit Limits	238	115	
WMB Frequency	A	A	
Not operational in 2001	n/a	n/a	n/a

W-3 Dustabator	Volume SM ³ /min.	Total Particulate	
		mg/SM ³	kg/24Hrs.
Permit Limits	481	290	
WMB Frequency	SA	SA	
Date	22-Jan-01	322	40.8
Date	22-Nov-01	318	142.6

W-4 #1 Dryer	Volume SM ³ /min.	Total Particulate	
		mg/SM ³	kg/24Hrs.
Permit Limits	569	290	
WMB Frequency	SA	SA	
Date	27-Feb-01	187	4.1
Date	20-Nov-01	281	5.3

TeckCominco Metals Ltd.
 Trail Fertilizer Operations Emission Tests - 2001
 Waste Management Branch Permit PA-02690

Fertilizer Storage Plant

W-6 #1 Mill		Volume SM ³ /min.	Total Particulate	
			mg/SM ³	kg/24Hrs.
Permit Limits		350 ^x	200	
WMB Frequency		A	A	
Date	11-Jan-01	167	75.5	18.2

W-7 #2 Mill		Volume SM ³ /min.	Total Particulate	
			mg/SM ³	kg/24Hrs.
Permit Limits				
WMB Frequency		A	A	
Not operational in 2001				

W-8 #11 Mill		Volume SM ³ /min.	Total Particulate	
			mg/SM ³	kg/24Hrs.
Permit Limits		350 ^x	200	
WMB Frequency		A	A	
Date	02-Feb-01	192	171.34	47.43

^x Volume limit is total of W-6 & W-8

W-10 #13 Mill		Volume SM ³ /min.	Total Particulate	
			mg/SM ³	kg/24Hrs.
Permit Limits		282	350	
WMB Frequency		A	A	
Date	10-Jan-01	141	0.13	0.03

W-12 #14 Mill		Volume SM ³ /min.	Total Particulate	
			mg/SM ³	
Permit Limits		141	350	
WMB Frequency		A	A	
Date	11-Jan-01	132	0.5	0.1

TeckCominco Metals Ltd.
 Trail Fertilizer Operations Emission Tests - 2001
 Waste Management Branch Permit PA-02690

Granular Ammonium Sulphate Plant

The following emission sources were not in service during 2001

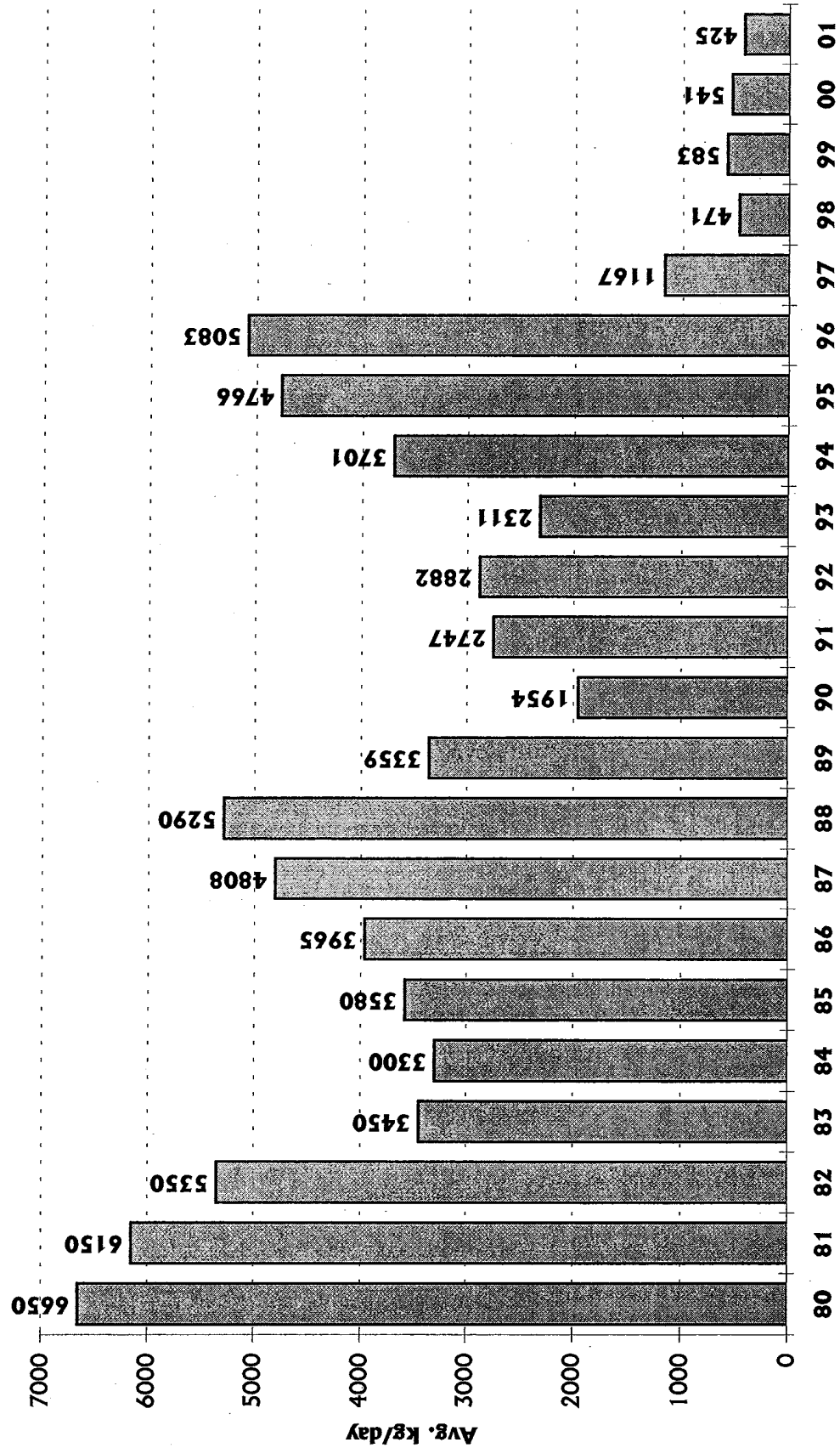
W-01	Oslo Vent
W-02	Centrifuge Vent
W-28	Salt Bin Baghouse
W-30	Rock Bin Baghouse
W-34	#1 Clarifier Vent
W-35	#2 Clarifier Vent
W-36	#3 Clarifier Vent
W-39	#2 Acid Feed Tank
W-40	#3 Acid Feed Tank
W-41	#4 Acid Feed Tank
W-43	#10 Impinger
W-44	#30 Impinger
W-45	#1 Fertilizer Stack
W-47	#3 Fertilizer Stack
W-54	Filter Vent Scrubber
W-55	Filter Vacuum Pump
W-56	Reactor Vent Scrubber
W-57	Cooler Vacuum Pump

W-46 GAS Cooler		Volume	Total Particulate		NH ₃	
		SM ³ /min.	mg/SM ³	kg/24Hrs.	mg/SM ³	kg/24Hrs.
Permit Limits		1000	46			
WMB Frequency		A	A		A	
Date	27-Nov-01	725	12.4	13.0	1.4	1.5

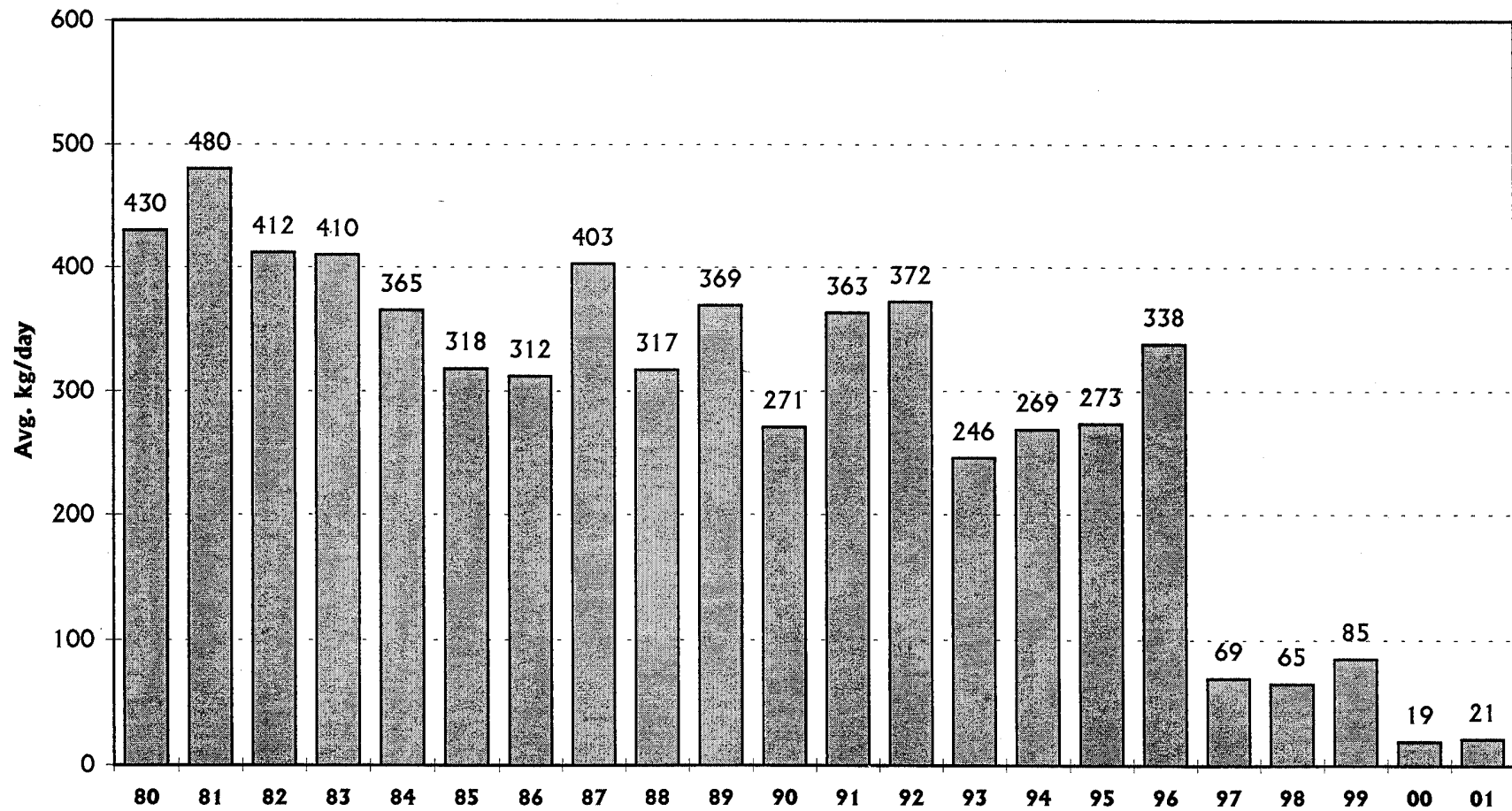
W-70 GAS Baghouse		Volume	Total Particulate	
		SM ³ /min.	mg/SM ³	kg/24Hrs.
Permit Limits		700	125	
WMB Frequency		A	A	
Date	27-Nov-01	673	166.3	161.1

W-71 GAS Scrubber		Volume	Total Particulate		NH ₃	
		SM ³ /min.	mg/SM ³	kg/24Hrs.	mg/SM ³	kg/24Hrs.
Permit Limits		2000	46			
WMB Frequency		SA	SA		SA	
Date	11-Apr-01	1002	30	43	718	1036
Date	27-Nov-01	971	79	110	507	708

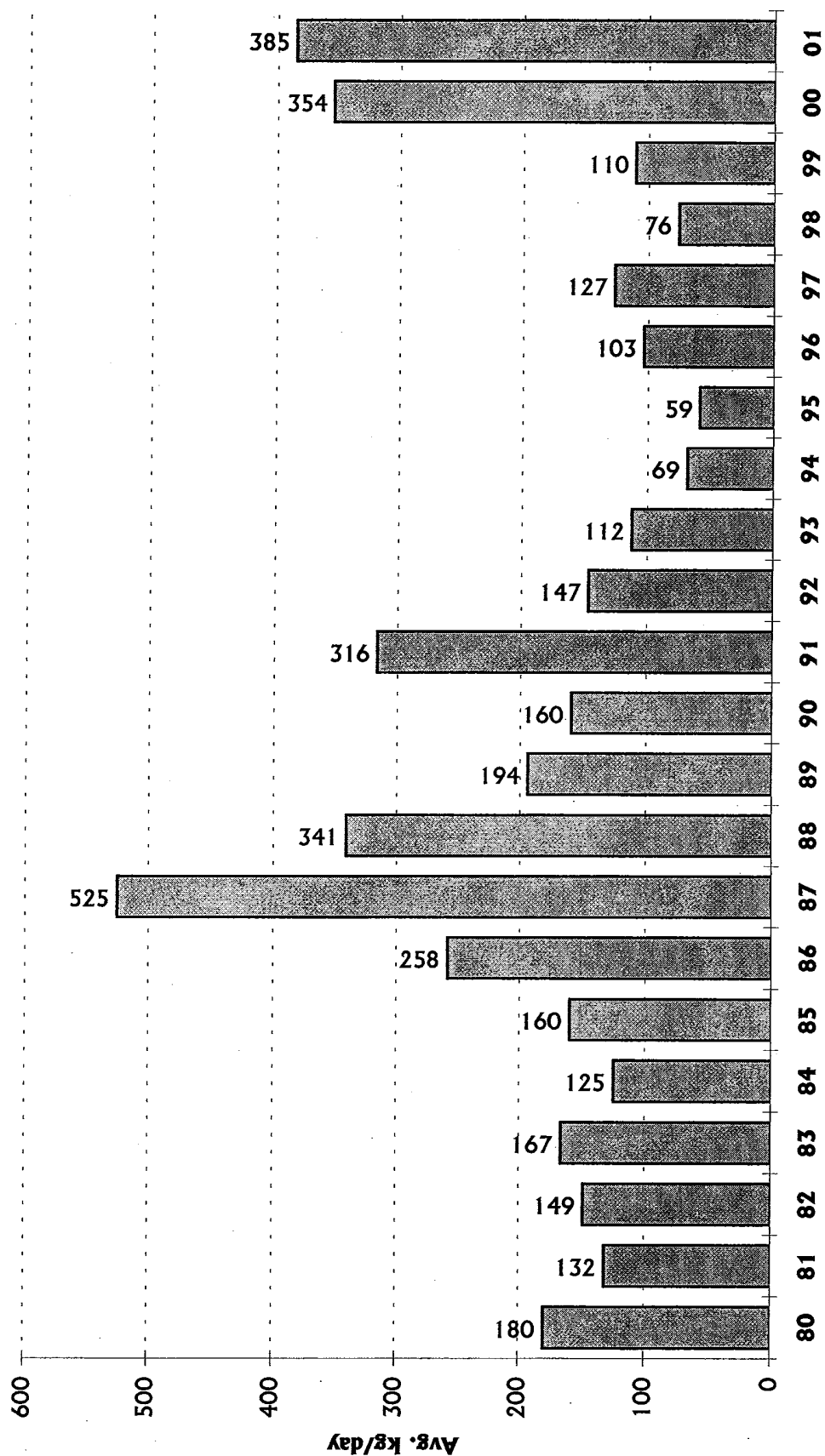
Cominco Limited - Trail Operations **Annual Average Daily Total Particulate Emissions**



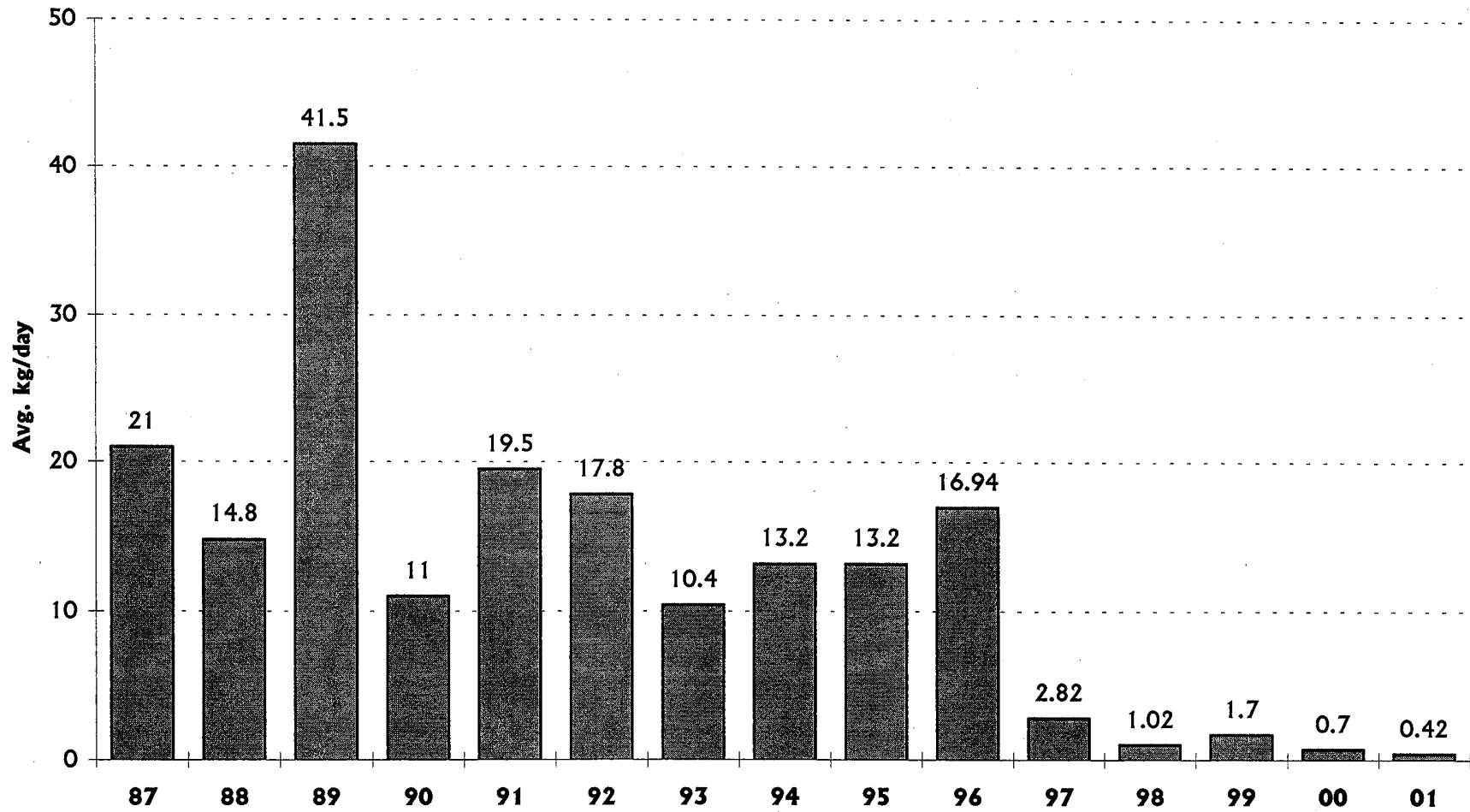
Cominco Limited - Trail Operations
Annual Average Daily Total Lead Emissions



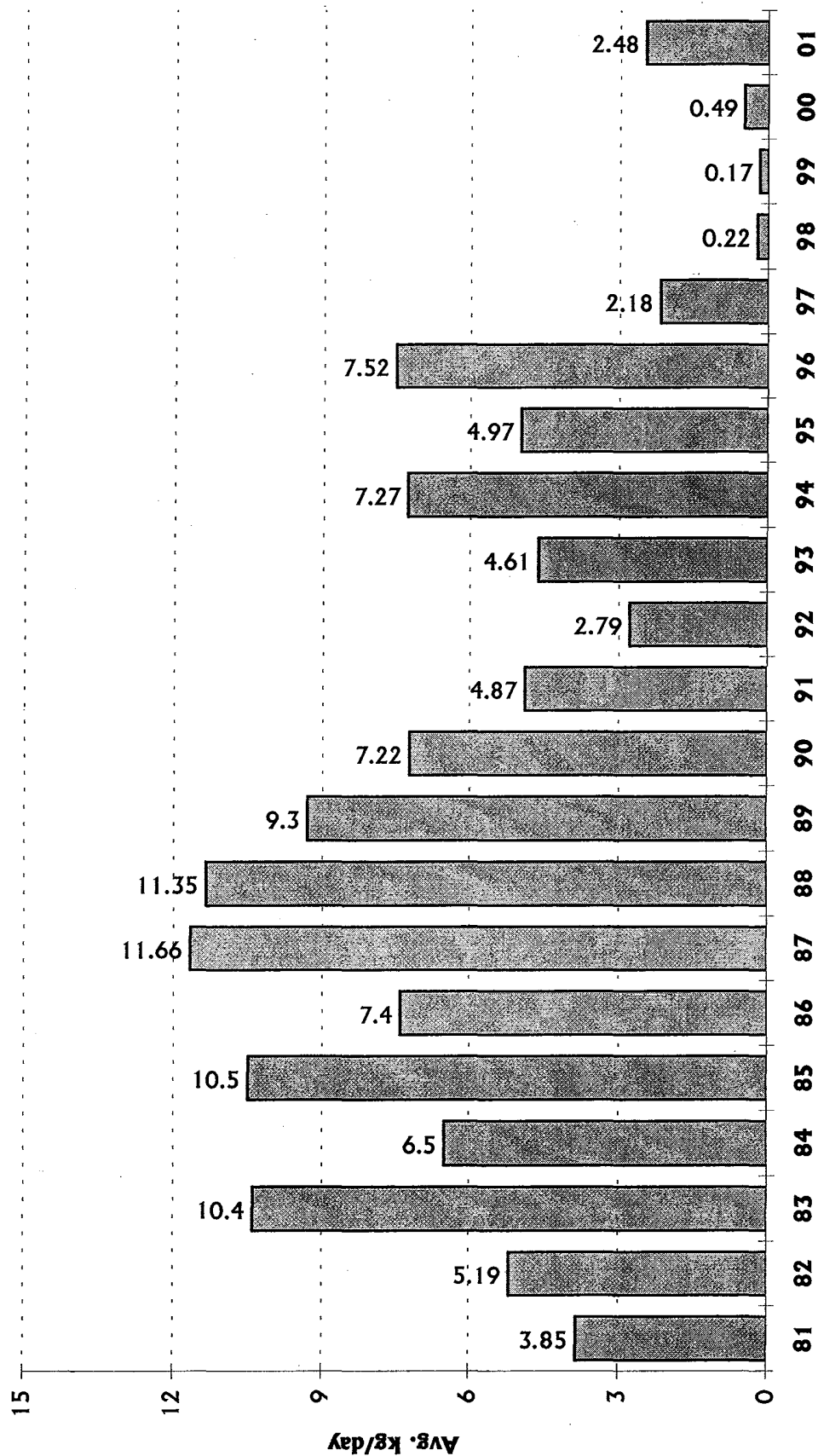
Cominco Limited - Trail Operations
Annual Average Daily Total Zinc Emissions



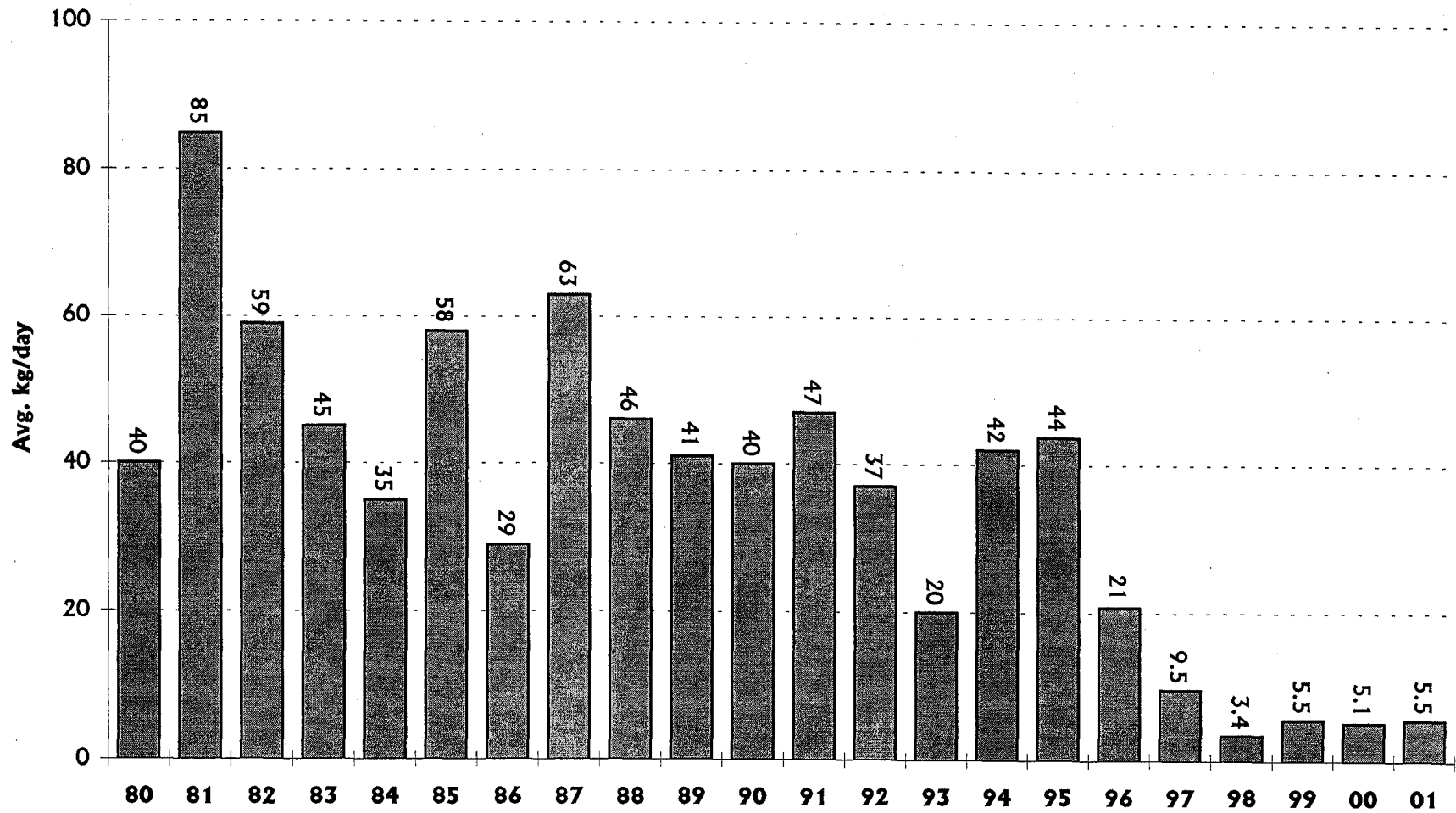
**Teck Cominco Metals Ltd - Trail Operations
Annual Average Daily Total Cadmium Emissions**



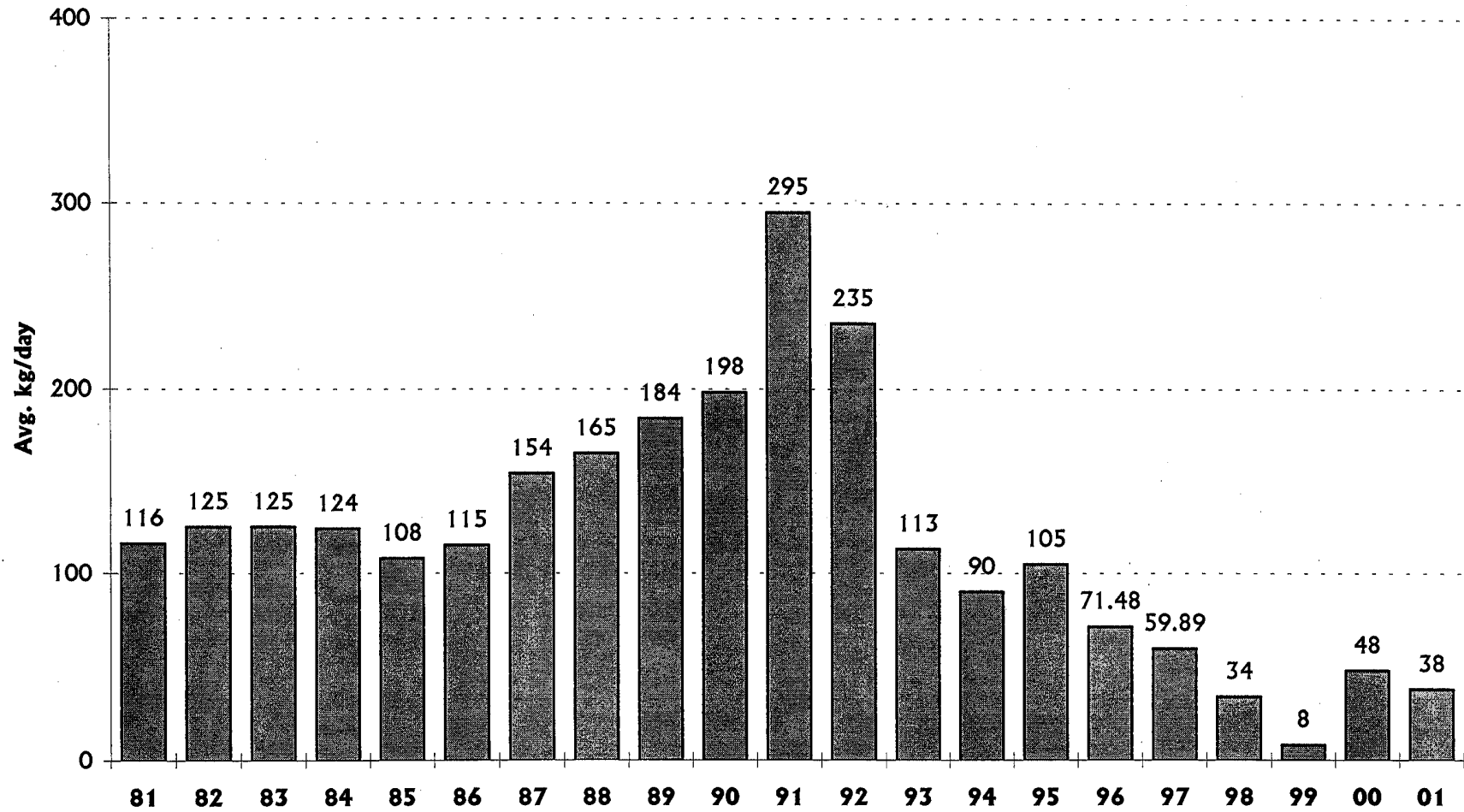
Cominco Limited - Trail Operations **Annual Average Daily Total Mercury Emissions**



Cominco Limited - Trail Operations
Annual Average Daily Total Arsenic Emissions



Cominco Limited - Trail Operations
Annual Average Daily Total Fluoride Emissions



**Effluent Monitoring
Summary & History**

Effluent Permits PE-02753, PE-05309

Effluent Monitoring - PE-02753

Detailed explanations were written to MWLAP for each of the following noted exceedences.

Combined Outfall II

Slight reductions in Arsenic and Zinc concentrations. All metals loading showed slight decreases except for total Arsenic, which showed a slight increase.

There were 3 effluent permit limit exceedences for the year; 2 dissolved Zinc loading and 1 dissolved Zinc concentration.

Combined Outfall III

Annual averages from this source showed decreases for concentration and loading for all elements except for Arsenic and Antimony. Both showed increases in Dissolved and Total results in concentration and in loading.

There were 6 effluent permit limit exceedences for the year; 3 dissolved Zinc and 1 dissolved Cadmium concentration, 1 dissolved Zinc concentration, and 1 total Mercury loading.

Effluent Monitoring - PE-05309

Combined Outfall IV

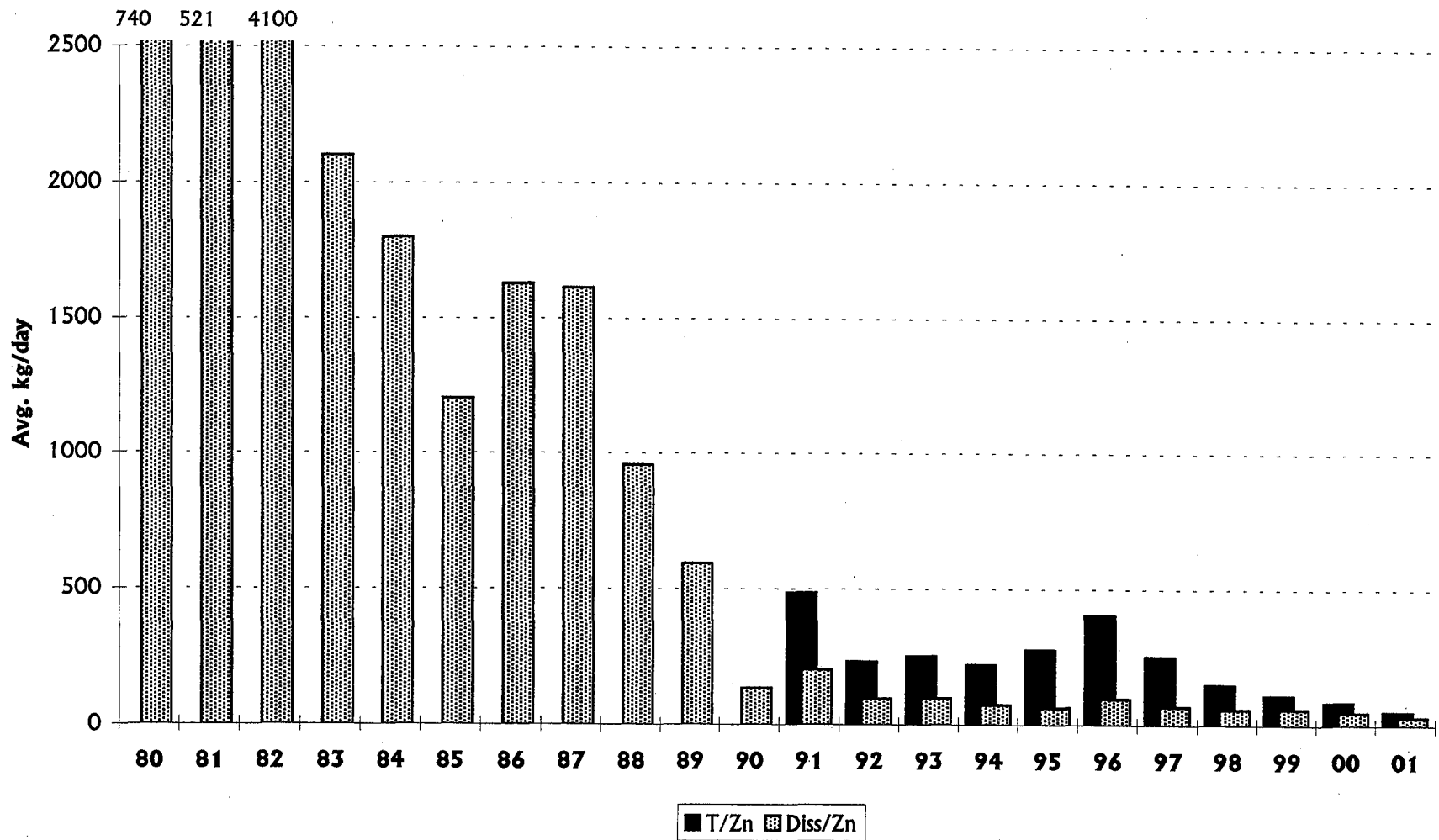
Annual averages from this source showed decreases for concentration and loading for all elements from 2000. There were 2 permit limit exceedences for the year; both for pH.

LC 50 Monitoring PE-02753 and PE-05309

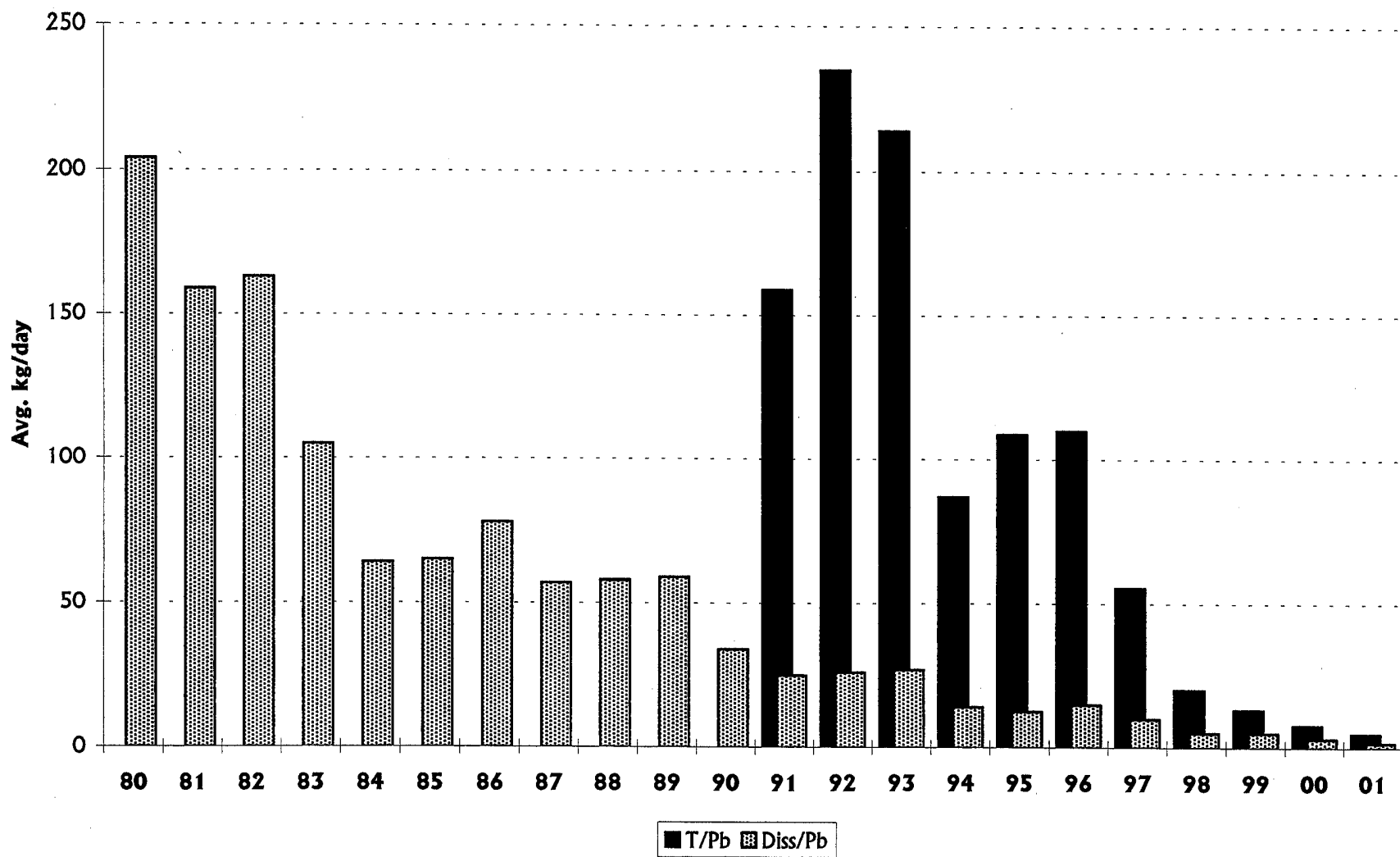
Outfall II passed 2 of the 4 quarters.
Outfall III passed 4 of the 4 quarters.
Outfall IV passed 3 of the 4 quarters.

Explanations for the failed tests were provided within the Teck Cominco monthly report to the local MWLAP.

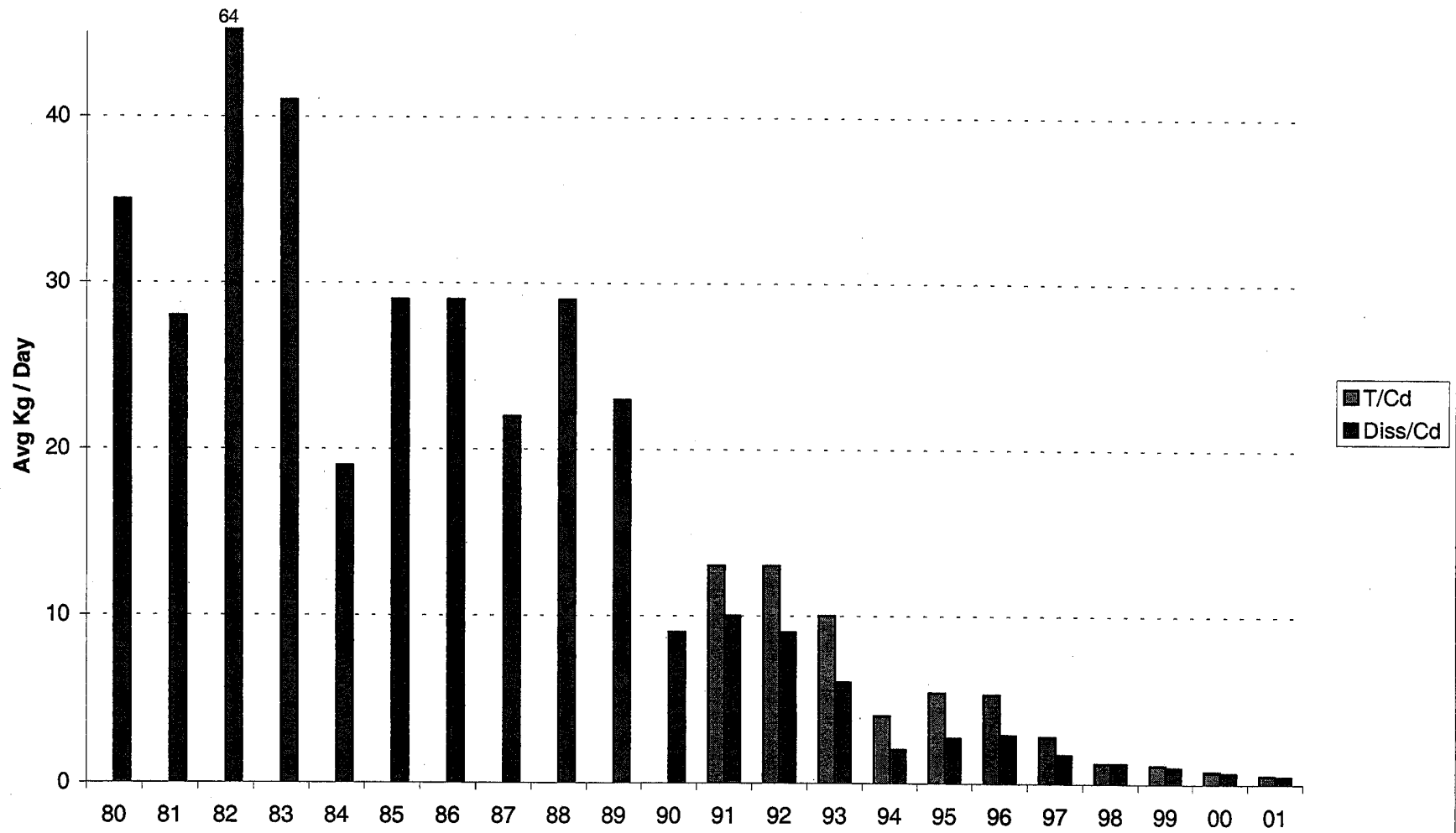
Teck Cominco Metals Ltd. Total & Dissolved Zinc All Metallurgical Outfalls



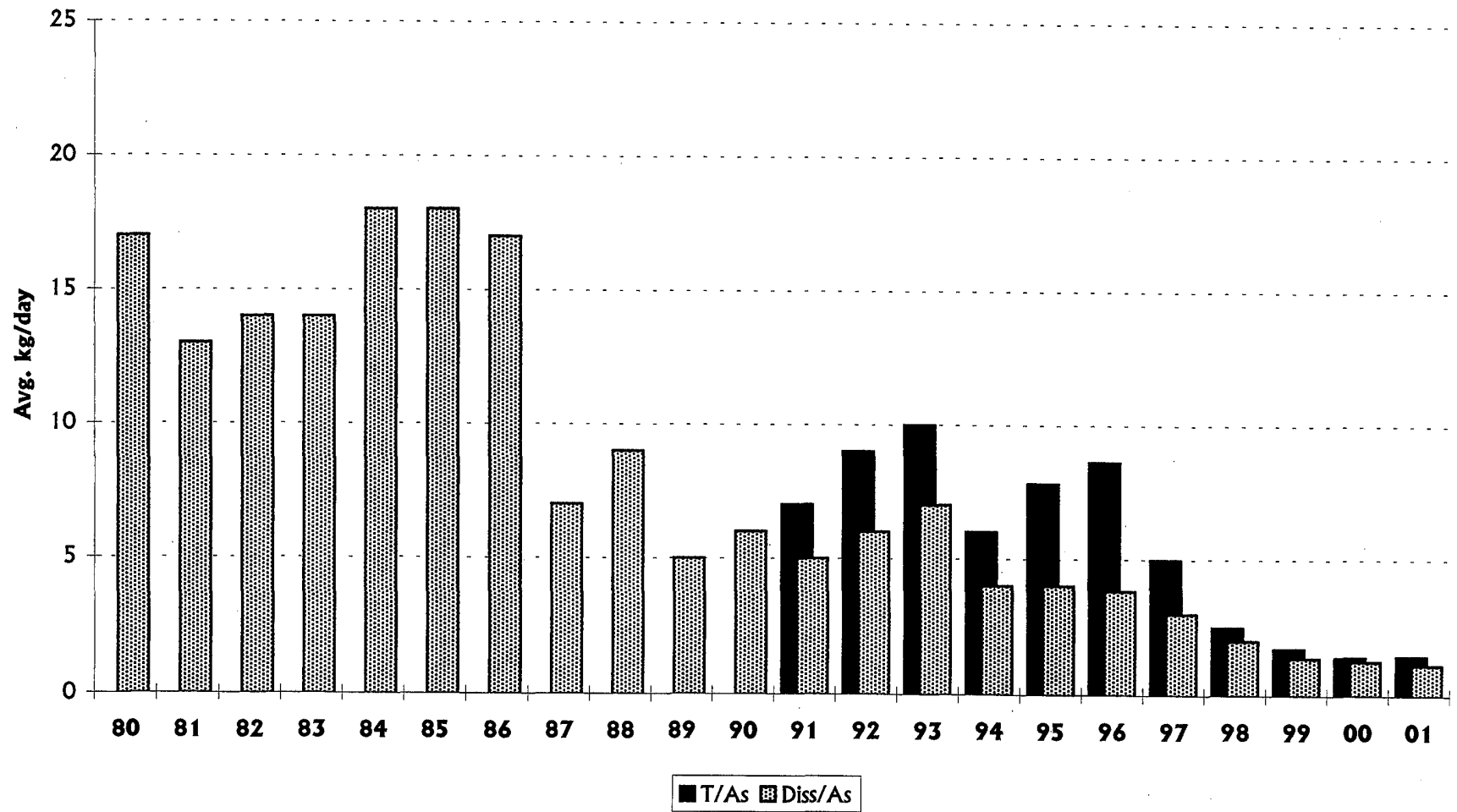
**TeckCominco Metals Ltd. Total & Dissolved Lead
All Metallurgical Outfalls**



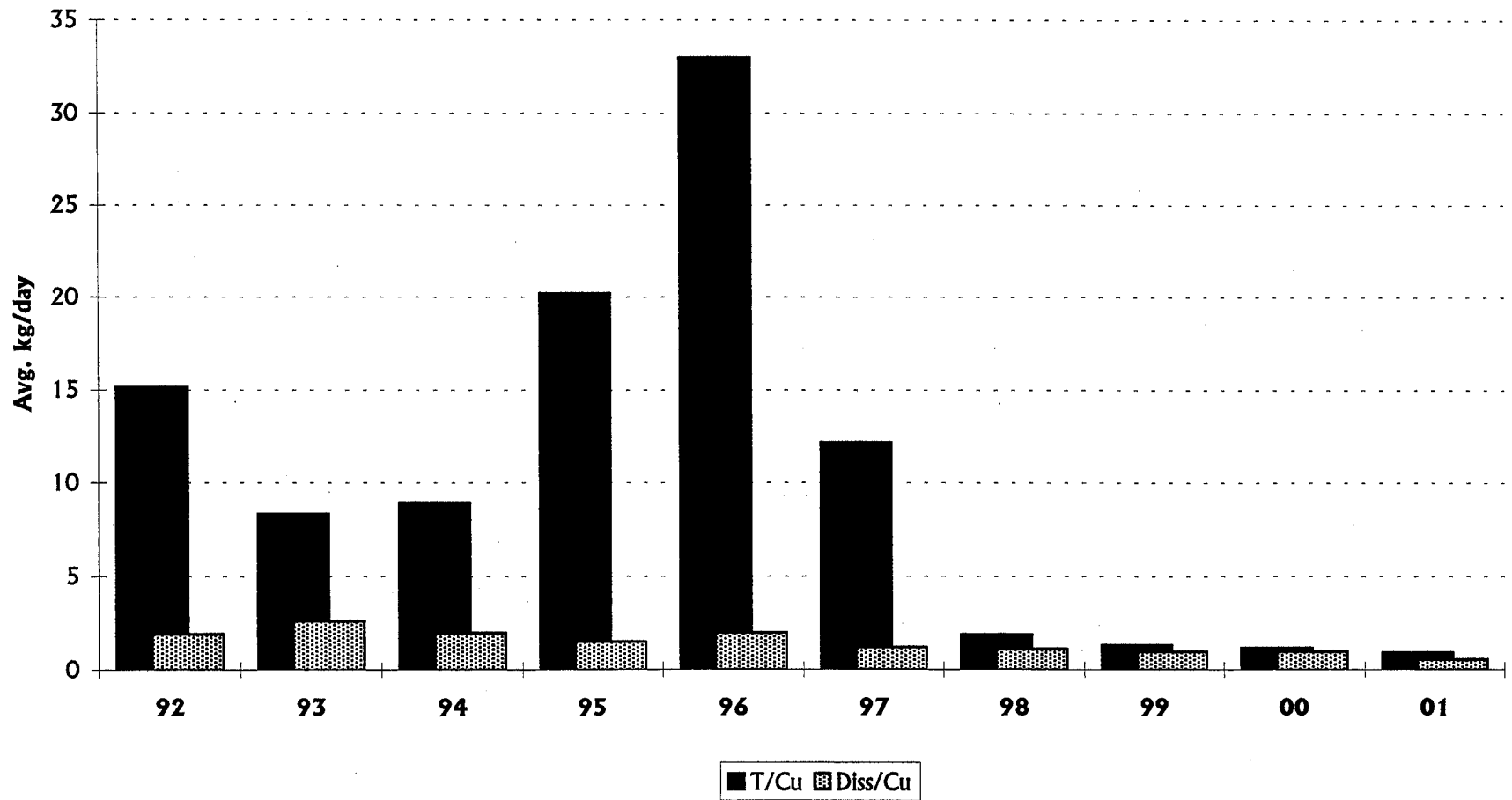
Teck Cominco Metals Ltd Total & Dissolved Cadmium All Metallurgical Outfalls



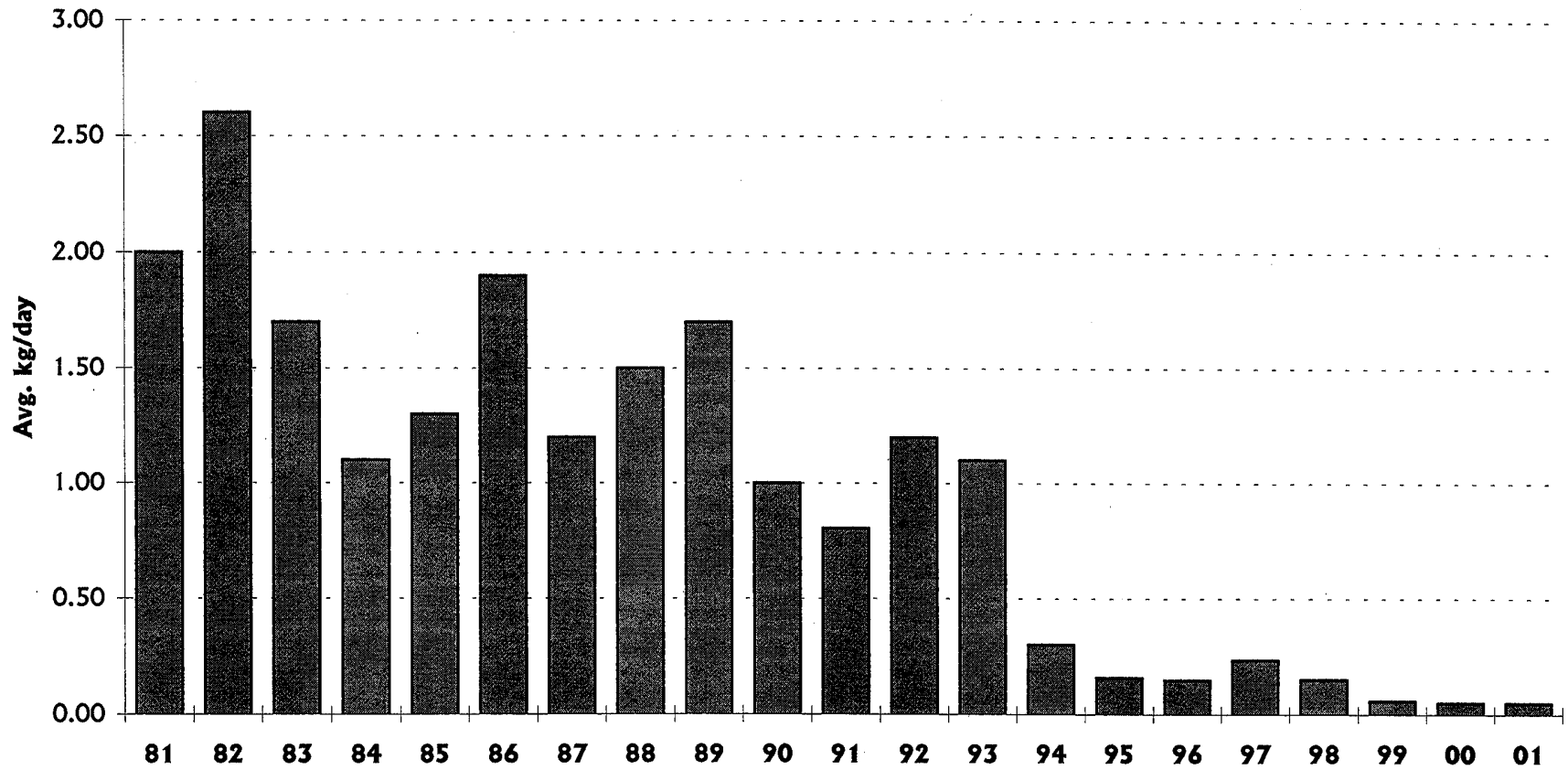
**TeckCominco Metals Ltd. Total & Dissolved Arsenic
All Metallurgical Outfalls**



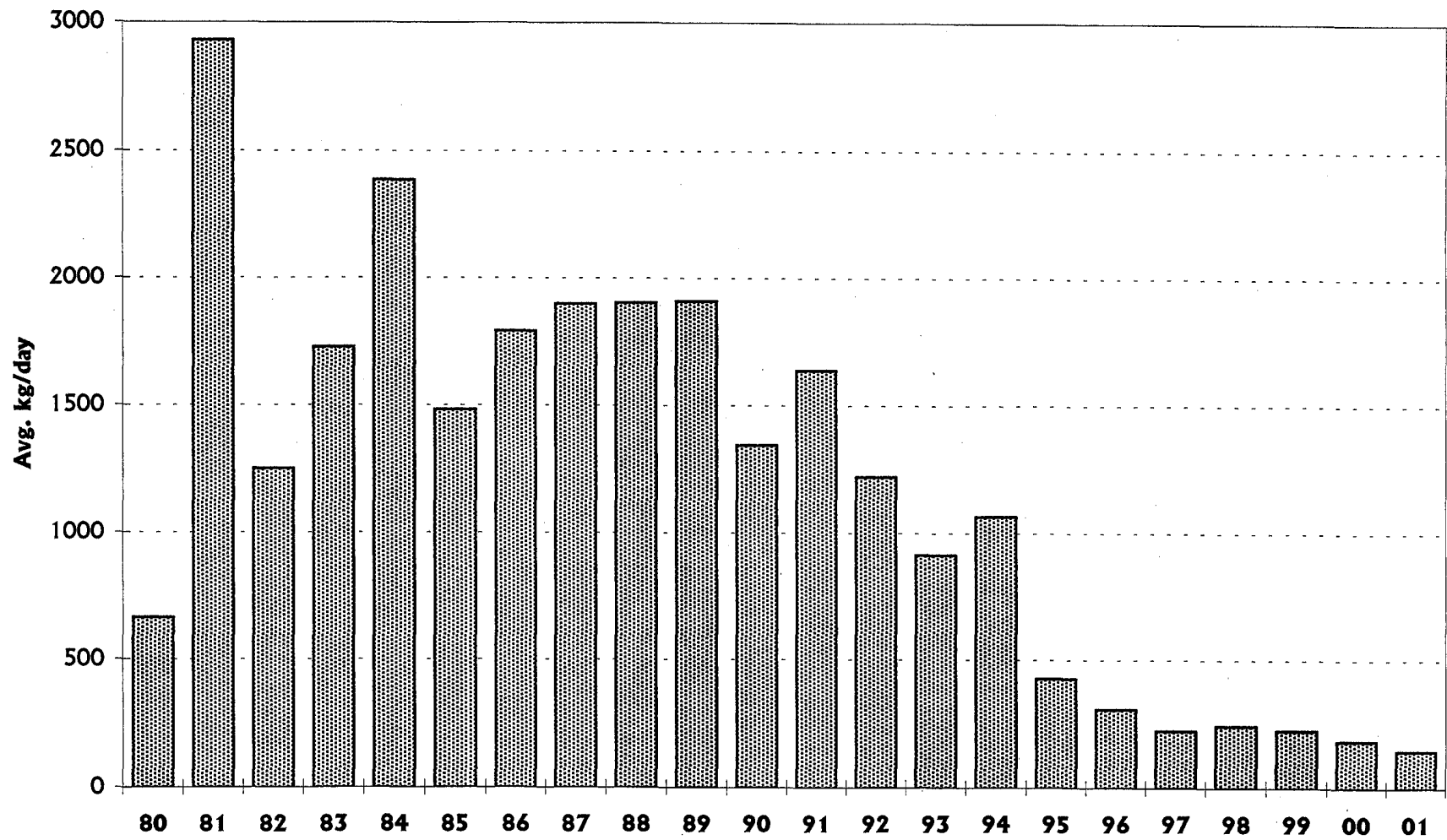
**TeckCominco Metals Ltd. Total & Dissolved Copper
All Metallurgical Outfalls**



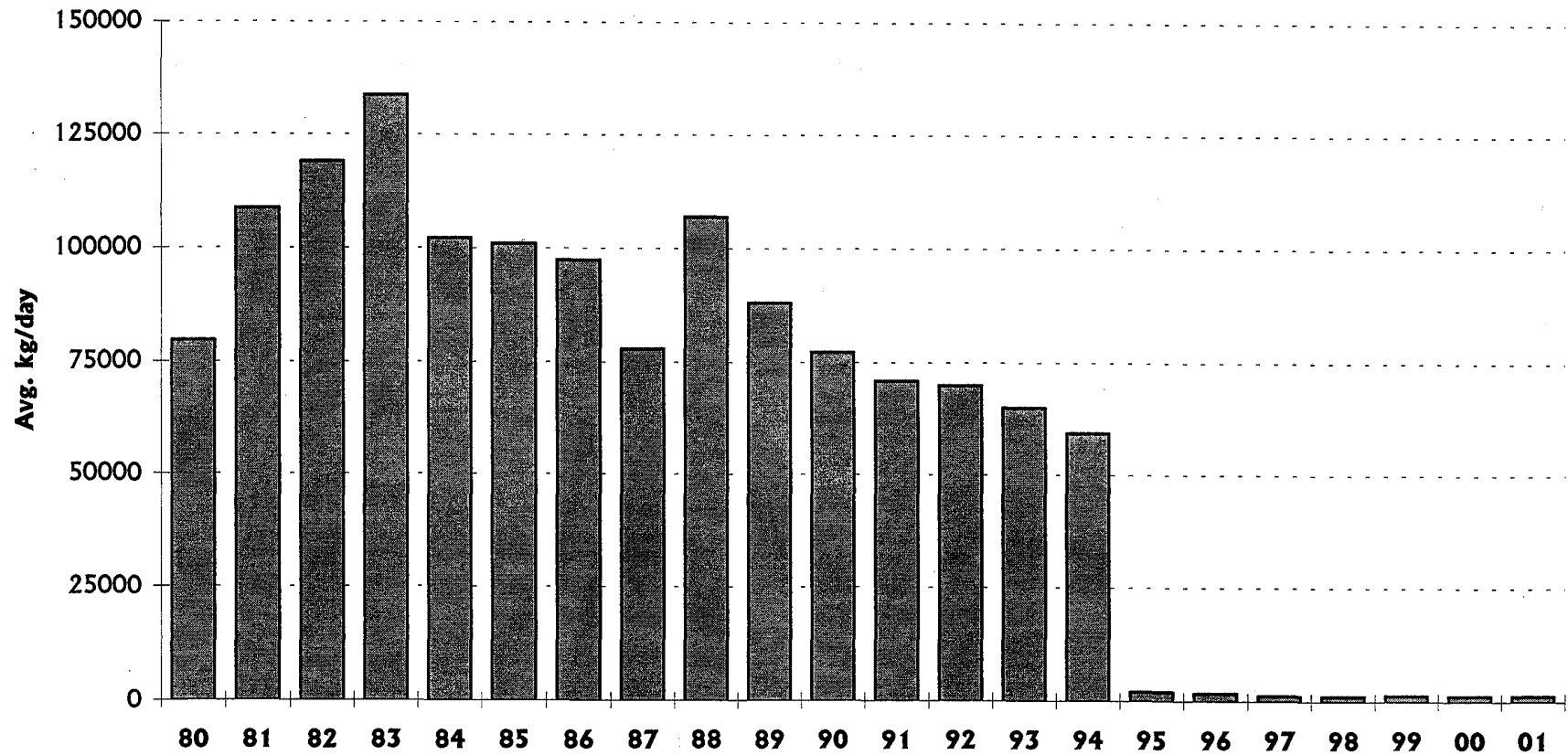
**TeckCominco Metals Ltd.Total Mercury
All Metallurgical Outfalls**



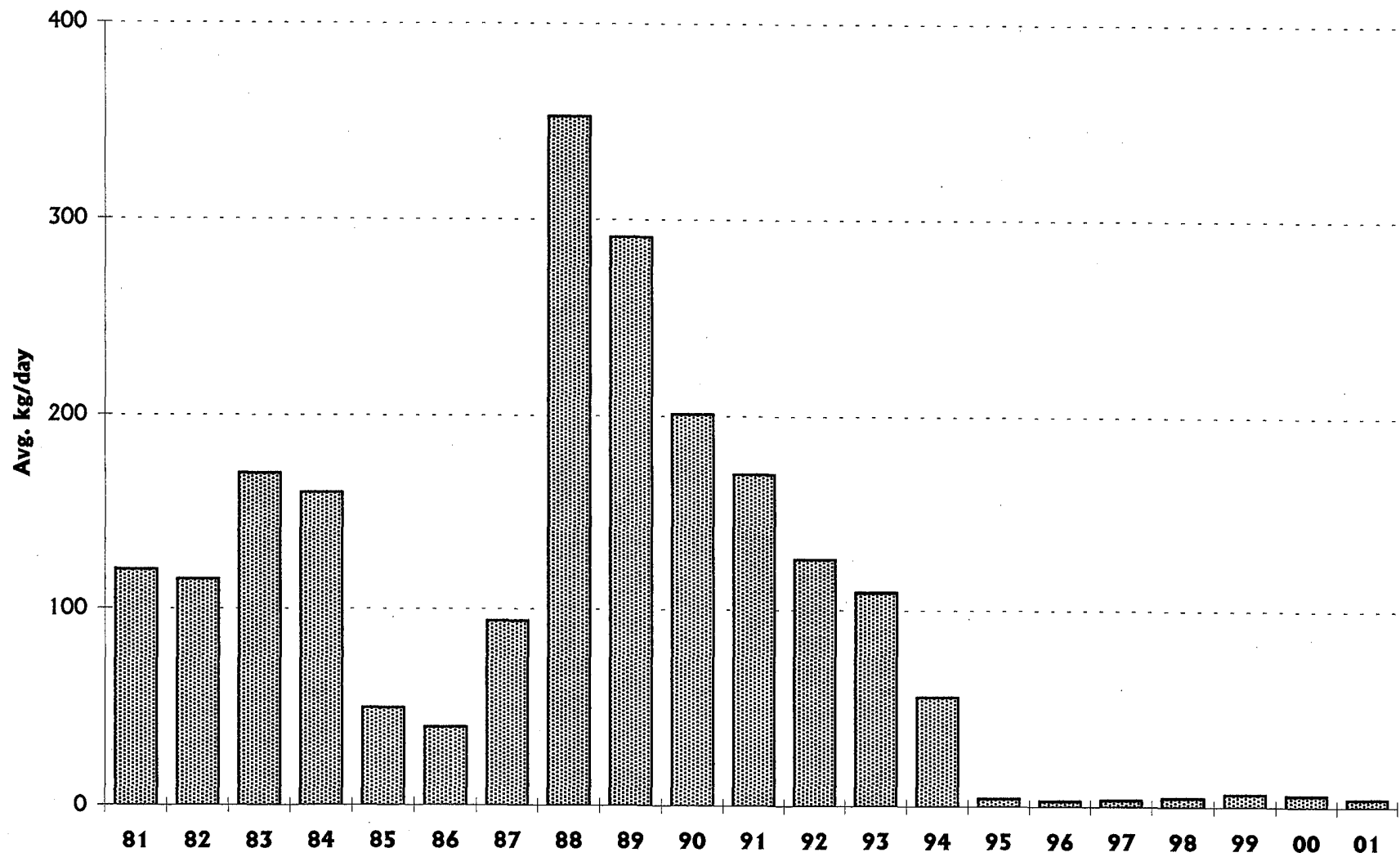
TeckCominco Metals Ltd. Trail Fertilizer Operations
Annual Average Daily NH_3/N Discharge



TeckCominco Metals Ltd. Trail Fertilizer Operations
Annual Average Daily Diss/SO₄ Discharge



TeckCominco Metals Ltd. - Trail Fertilizer Operations
Annual Average Daily Dissolved Zinc Discharge



**TeckCominco Metals Ltd.Total Mercury
Fertilizer Outfall**

