

Fraser River Action Plan



Combined Sewer Overflow Inventory for Fraser River and Burrard Inlet

CANADA'S GREEN PLAN
LE PLAN VERT DU CANADA

Canada

DOE FRAP 1993-21



Environment
Canada

Environnement
Canada

COMBINED SEWER OVERFLOW INVENTORY FOR THE FRASER RIVER BASIN AND BURRARD INLET

DOE FRAP 1993-21

Prepared for:

Environment Canada
Conservation and Protection
Fraser Pollution Abatement Office
224 West Esplanade
North Vancouver, B.C.
V7M 3H7

Prepared by:

UMA Engineering Ltd.
3030 Gilmore Diversion
Burnaby, B.C.
V5G 3B4

October 1992

DISCLAIMER

This report was funded by Environment Canada under the Fraser River Action Plan through its Fraser Pollution Abatement Office. The views expressed herein are those of the authors and do not necessarily state or reflect the policies of Environment Canada.

Any comments regarding this report should be forwarded to:

Fraser Pollution Abatement Office
Environment Canada
224 West Esplanade Avenue
North Vancouver, B.C. V7M 3H7

ACKNOWLEDGEMENT

UMA Engineering Ltd. would like to thank Messrs. Russ Black, P.Eng., and Peter Deutsch, P.Eng., of the GVRD, Steve McTaggart, P.Eng., of the City of Vancouver and their respective staffs for their invaluable assistance in gathering and interpreting the information for this report.

TABLE OF CONTENTS

	<i>Page No.</i>
1.0 <i>INTRODUCTION</i>	1
2.0 <i>COMBINED SEWER OVERFLOWS IN STUDY AREA</i>	2
3.0 <i>INVENTORY OF AVAILABLE CSO DATA</i>	3
3.1 <i>Site Data</i>	3
3.2 <i>Structural Data</i>	3
3.3 <i>Environmental Data</i>	4
4.0 <i>INDUSTRIAL DISCHARGES TO CSOs</i>	5
5.0 <i>SUMMARY</i>	6

APPENDIX A - Site, Structural and Flow Data

APPENDIX B - Environmental Data

APPENDIX C - Industries holding Waste Discharge Permits

APPENDIX D - Figures Summarising CSO Effluent Volumes

1.0 INTRODUCTION

UMA Engineering Ltd. was retained by Environment Canada to conduct an inventory of all combined sewer overflow (CSO) discharges to the Fraser River Basin, including Burrard Inlet and its tributaries. The project was required by the pollution abatement component of the Fraser River Action Plan, an initiative of the federal Green Plan, which calls for the identification of contaminants entering the Fraser River Basin from both point and non-point effluent sources. Combined sewer overflow discharges represent point sources of pollution and thus require evaluation.

As given by the terms of reference for this project, the number of CSO structures in the study area was confirmed. Subsequently, for each CSO located, an inventory was conducted of the information available regarding the sites, the structures, the overflow volumes, frequencies and quality, the contributing industries and the receiving environments. The primary sources of information were the Greater Vancouver Regional District (GVRD) and the City of Vancouver; no field survey work was required as part of the project.

The following report summarizes the data collected and provides comment on the information and the means of its collection.

2.0 CSOs IN STUDY AREA

A survey of British Columbia and Yukon sewage collection systems for municipalities with populations greater than 10,000 was conducted in the Spring of 1992 by Mr. Jeff Addis, P.Eng., of the City of Vancouver. As a result, it only remained necessary for UMA to survey municipalities located within or discharging to the Fraser River Basin or Burrard Inlet (and tributaries) with populations less than 10,000.

The purpose of the UMA questionnaire was two-fold: firstly, to determine whether wastewater collection in each jurisdiction consisted of entirely separate storm and sanitary sewage systems (or whether the collection systems were combined) and secondly where appropriate, to confirm to which watercourse the combined sewer overflow was being discharged. A listing of communities located within the Fraser River Basin, compiled by Westwater Research Centre, was used as the basis of the survey. The results of the survey are presented in Table 2.1. As anticipated, no CSO structures were located in the study area outside of the Lower Mainland. However, within the Lower Mainland 53 combined sewer outfalls were found: 5 in Burnaby, 13 in New Westminster and 35 in Vancouver.

TABLE 2.1: Number of combined sewer overflow outfalls in municipalities located within, discharging to, the Fraser River Basin or Burrard Inlet.

MUNICIPALITY	NO. OF CSO OUTFALLS	MUNICIPALITY	NO. OF CSO OUTFALLS
BUCKLEY-NECHAKO Burns Lake Fort St. James Fraser Lake Vanderhoof	-	GREATER VANCOUVER Burnaby Coquitlam Delta Langley, City Langley, District New Westminster North Vancouver Port Coquitlam Port Moody Richmond Surrey Vancouver West Vancouver White Rock	5 - - - - - 13 - - - - - - - 35 - -
CARIBOO 100 Mile House Quesnel Williams Lake	-	NORTH OKANANGAN Enderby Lumby Spallumcheen (2)	- - -
CENTRAL FRASER VALLEY Abbotsford Matsqui	-	SQUAMISH-LILLOOET Lillooet Pemberton Whistler (1,2)	- - -
COLUMBIA-SHUSWAP Salmon Arm	-	THOMPSON-NICOLA Ashcroft (1) Cache Creek Chase Clinton Kamloops Logan Lake Lytton Merritt	- - - - - - - -
DEWDNEY-ALOUETTE Maple Ridge Mission Pitt Meadows	-		
FRASER-CHEAM Chilliwack Harrison Hot Springs Hope Kent	-		
FRASER-FORT GEORGE McBride Prince George Valemount	-		

Note: (1) wastewater collection system does not discharge to the Fraser Basin
(2) municipality straddles the Fraser Basin boundary

3.0 INVENTORY OF AVAILABLE CSO DATA

An inventory was made of the site, structural, flow and environmental data available for each CSO outfall in the study area. The information collected is presented in a separate table for each outfall in Appendix A, with the exception of flow data which is provided in an addendum to this report.

3.1 SITE DATA

Fifty-three outfalls are currently discharging untreated combined sewer overflow to Burrard Inlet (Vancouver Harbour, False Creek and English Bay), the Brunette River and the North Arm of the Fraser River. The approximate location of each outfall has been depicted in **Figure 3.1**. It should be noted that the municipality in which the CSO structure is located is not necessarily the owner of the structure.

Latitude, Longitude, UTM

The latitude, longitude and Universal Transverse Mercator (UTM) coordinates given in Appendix A are anticipated to be accurate within 50 m. Notwithstanding any inaccuracies in the outfall plans, slight discrepancies from the true outfall locations may exist as it was necessary to first locate the outfalls with respect to road intersections on the plans in order that they may then be plotted on maps overlain with a latitude/longitude grid. Latitudinal and longitudinal coordinates were converted to UTM coordinates by the computer program MICROSURVEY. All UTM data is based on North American Datum 1983 (NAD 83).

3.2 STRUCTURAL DATA

Wherever possible, structural data (outfall depth, length, diameter and diffusers) was obtained or derived from "as-built" drawings of the CSO structures. However, for numerous outfalls some difficulties were encountered: only "proposed" outfall design drawings were available, the drawings dated back more than seventy years, the drawings were incomplete or unreadable or the outfall drawings were missing altogether. As a result, in some instances the personal knowledge of municipal employees was relied upon for the structural description of an outfall; this data is thus marked as approximate.

Outfall Depth

The outfall depths reported in the tables of Appendix A are in terms of both (a) the geodetic elevation of the outfall invert and (b) the depth of the invert below chart datum (ie. the depth of the invert below the lowest normal tide at that location).

Zero geodetic elevation is, by definition, equivalent to the 1928 mean sea level. The chart datum is the lowest normal tide elevation. The distance below geodetic of the chart datum for specific water bodies and positions along watercourses affected by tidal action can be obtained from the Canadian Hydrographic Service. As "as-built" drawings generally only

provide invert elevations relative to the geodetic datum, it was necessary to cross-reference the geodetic elevations from the as-builts with the chart datums from the Canadian Hydrographic Service to estimate the depth of the outfalls below the water surface at lowest normal tide.

Some outfalls are exposed at lowest normal tide and are indicated as such in Appendix A.

Distance to Shore

The outfall length was measured as the perpendicular distance to the shoreline from the outfall. It should be noted however, that many outfalls are located in areas of Greater Vancouver undergoing extensive development (ie. Vancouver Harbour and False Creek). As a result of the rapidly changing harbour profiles accurate measurements of outfall extensions from land are difficult to obtain. Outfalls located in areas where tides have a great effect on the position of the shoreline (ie. English Bay) were plotted on the June 1989 Vancouver Harbour marine chart and the outfall length was taken as the perpendicular distance to the "normal" shoreline as depicted on the chart.

3.3 ENVIRONMENTAL DATA

The availability of data specific to the nature of the discharge of a particular outfall or its receiving environment is indicated in the summary tables of Appendix A. The tables in Appendix B detail the studies referenced - the program, contact and the parameters investigated in the study.

The publications available through the Fraser River Estuary Management Office, the GVRD, the B.C. Ministry of Environment (MOE) and Environment Canada served as the basis for the literature search for this report. Numerous studies by various government, corporate and academic agencies on the quality of the CSO receiving environment were found. In particular however, extensive information on the water quality of Burrard Inlet and the Fraser River is provided in the Entech Environmental Consultants Report to BIEAP which details monitoring programs in Burrard Inlet from 1985 to 1991 and the annual MOE reports on the attainment of ambient water quality objectives in B.C. The emphasis of the literature search for this report was placed on outfall receiving environment data collected since 1985. Due to the lack of detail provided by the majority of sampling location maps, studies sampling within 200 m of an outfall have also been cited in the appendices.

Through personal communication with representatives of the City of Vancouver, New Westminster and the GVRD it has been confirmed that no detailed characterization of CSO discharge has been undertaken. However, there are a limited number of reports available which provide estimates of CSO discharge quality and quantity based on typical values found through literature review, monitoring data from sewage treatment plants (and to a very limited extent CSOs) and/or simulation. The report references are included in Appendix B.

4.0 INDUSTRIAL DISCHARGES TO CSOs

Waste discharge permits issued by the Source Control department of the GVRD under Bylaw No. 164 provided the information necessary to determine the industrial and commercial discharges to the wastewater collection systems of Burnaby, New Westminster and Vancouver. The industry location, type, permitted flows and discharge criteria, as given by each permit, and the possible overflow locations of each enterprise's discharge are tabulated in Appendix C. It should be noted however, as of August 6, 1992, there remain some dischargers operating under the Waste Management Orders which preceded Bylaw No. 164; the updating of these Orders is still underway. UMA has been provided with a listing of industries falling into this category and which are discharging greater than 100 m³/d; these industries have been included in Appendix C in a separate table. Approximately 3-4 new permits are issued monthly by the GVRD.

Type of Industry

Based on the industry description in the permit and phone calls to enterprises for clarification of their activities, the industries were classified according to the most current (1980) Canadian Standard Industrial Classification (SIC) codes. It should be noted that the Canadian classification system is not sufficiently extensive to accurately describe all of the industries for which permits were issued. For example, a code does not exist for soil and groundwater remediation and a specific category for food processing entailing the cutting and washing of fruits and vegetables (as opposed to canning, preserving and freezing) is also not available. Definitions of the SIC codes, and modified codes, used appear in the final table of Appendix C.

Overflow Location

Estimates were made of the potential overflow locations of each industry's discharge. In most cases it was not possible to isolate one specific outfall as the recipient of an industry's discharge as the overflow location is generally highly dependent on the flow conditions throughout the collection system.

5.0 SUMMARY

In all, fifty-three combined sewer outfalls located in Burnaby, New Westminster and Vancouver are discharging untreated combined sewer overflow to the waters of English Bay, Vancouver Harbour, False Creek, the Brunette River and the North Arm of the Fraser River. It has been confirmed that there are no CSOs in the study area outside of the Lower Mainland. Figure 3.1 depicts the approximate location of each of the outfalls found.

Existing site, structural, flow volume, quality and frequency, environmental and industrial/commercial discharge data has been assembled from the respective municipalities and from the GVRD for each CSO and is presented in the appendices. No field survey work was undertaken to confirm the information found or to ascertain any missing information. However, the report was submitted to representatives of the GVRD, the City of Vancouver and the City of New Westminster for review prior to its presentation in this final form.

APPENDIX A

Site, Structural & Flow Data

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER	ALMA-DISCOVERY GVRD Russ Black		
ENVIRONMENTAL CONTACT (1)	Vancouver		
MUNICIPALITY	English Bay		
RECEIVING WATER BODY			
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 16' 41.0" 123° 12' 6.0" 5458386 485332	
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	23.17 m (wrt BM#167) N/A 137 m 1.52 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 2, 5.		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

(2) no record of benchmark elevation available

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	0	0
February	0	0
March	0	0
April	0	0
May	0	0
June	0	0
July	0	0
August	0	0
September	0	0
October	0	0
November	0	0
December	0	0
TOTALS	0	0

Probable Years: Westridge, North Arm and Burrard Inlet

Winter-1970(October to May)

Summer-1990(May to September)

Probable Years: New Westminster Waterfront

Winter-1986(October to April)

Summer-1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER	ANGUS DR. GVRD Russ Black		
ENVIRONMENTAL CONTACT (1)	Vancouver		
MUNICIPALITY	Fraser River		
RECEIVING WATER BODY			
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 25.3" 123° 8' 54.2 5450481 489192		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-1.64 m 0.56 m (above water) <50 m 1.98 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 5, 6, 7, 8		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu. ft.)	Frequency
January	9924179	11
February	4163680	9
March	2714695	16
April	453529	8
May	195324	4
June	2823040	9
July	0	0
August	737149	2
September	981583	3
October	1886414	6
November	1647448	10
December	5152958	12
TOTALS	30680000	90

Probable Years: Westridge, North Arm and Burrard Inlet

Winter-1970(October to April)

Summer-1990(May to September)

Probable Years: New Westminster Waterfront

Winter-1986(October to April)

Summer-1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER	ARBUTUS ST. Vancouver Jeff Addis		
ENVIRONMENTAL CONTACT (1)	Vancouver		
MUNICIPALITY	English Bay		
RECEIVING WATER BODY			
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 16' 46.9" 123° 9' 0.5" 5458561 489080	
TREATMENT		No	
OUTFALL:	geodetic elevation depth distance from shore diameter	-6.30 m 3.26 m 170 m 1.68 m	
DIFFUSERS		No	
DISCHARGE CHARACTERIZATION		No	
RECEIVING ENVIRONMENT DATA		2	

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu. ft.)	Frequency
January	56741	2
February	25919	2
March	0	0
April	0	0
May	0	0
June	6872	1
July	0	0
August	3144	1
September	0	0
October	7421	2
November	0	0
December	9903	2
TOTALS	110000	10

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DB	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	BALACLAVA ST. GVRD Russ Black Vancouver English Bay		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 16' 27.7" 123° 10' 21.0" 5457970 487452		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-6.30 m 3.26 m 212 m 1.52 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(mcu ft)	Frequency
January	6908000	7
February	2952000	6
March	1279000	9
April	17840	3
May	18920	1
June	941400	4
July	0	0
August	600500	1
September	1131000	2
October	1630000	4
November	681900	3
December	3140000	9
TOTALS	19300560	49

Probable Years: Westridge, North Arm and Burrard Inlet

Winter-1970(October to April)

Summer-1990(May to September)

Probable Years: New Westminster Waterfront

Winter-1986(October to April)

Summer-1986(May to September)

		SOURCE GVS&DD	DATE 82/09/01
NAME OWNER	BEGBIE ST. New Westminster Steve Day New Westminster Fraser River		
ENVIRONMENTAL CONTACT (1) MUNICIPALITY			
RECEIVING WATER BODY			
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 2.0" 122° 54' 31.7" 5449755 506643		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	~0.5 m above water < 50 m 0.46 m	New West. New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft)	Frequency
January	0	0
February	0	0
March	0	0
April	0	0
May	0	0
June	34311	1
July	0	0
August	0	0
September	163594	1
October	0	0
November	425596	2
December	76499	1
TOTALS	700000	5

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVRD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	BORDEN ST. GVRD Russ Black Vancouver Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 32.5" 123° 4' 28.7" 5450696 494564		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-4.70 m 2.90 m < 50 m 2.13 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 8		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft)	Frequencies
January	10057670	13
February	5891561	12
March	4557795	13
April	1034660	10
May	195944	7
June	2854726	9
July	10764	3
August	646535	4
September	813282	2
October	2202595	10
November	2538326	12
December	7976142	13
TOTALS	38780000	108

Probable Years: Westbridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 32/09/01
NAME OWNER	BROCKTON POINT GVRD Russ Black		
ENVIRONMENTAL CONTACT (1)	Vancouver		
MUNICIPALITY	Vancouver Harbour		
RECEIVING WATER BODY			
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 18' 6.0" 123° 6' 56.5" 5460998 491589	
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-9.46 m 6.49 m < 50 m 1.37 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: see information on Burrard Street CSO

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	BURRARD ST. Vancouver Jeff Addis <i>Vancouver</i> Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 19.2" 123° 6' 50.8" 5459553 491702		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-5.14 m 2.17 m < 50 m 1.52 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: Burrard St. CSO includes information on the following CSO: Burrard St., Denman St., Drake St., Granville St., Jervis St., Brockton and Parklane

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.m.)	Frequency
January	12530312	7
February	7298553	11
March	4661924	13
April	1046554	8
May	676819	4
June	4232776	6
July	279655	1
August	1156878	2
September	1757078	2
October	4044518	5
November	2813754	8
December	8351180	13
TOTALS	48850000	83

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 82/08/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	CARLTON GVRD Russ Black Burnaby Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	N/A N/A N/A N/A		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-2.40 m 0.62 m (above water) N/A 0.61 m	Burnaby Burnaby	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: Outfall details obtained from proposed outfall drawings.

Note: see information on Gilmore Street CSO

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	CASSIAR ST. EAST GVRD Russ Black <i>Vancouver</i> Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 29.4" 123° 1' 44.0" 5459862 497901		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-0.45 m 2.53 m (above water) <50 m 3.81 m x 1.70 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: see information on Cassiar North CSO

		SOURCE GVS&DD	DATE 192/09/01
NAME	CASSIAR ST. NORTH		
OWNER	GVRD		
ENVIRONMENTAL CONTACT (1)	Russ Black		
MUNICIPALITY	<i>Vancouver</i>		
RECEIVING WATER BODY	Vancouver Harbour		
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 17' 30.1" 123° 1' 46.0" 5459883 497859	
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-9.56 m 6.59 m 65 m 0.76 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION	No		
RECEIVING ENVIRONMENT DATA	4		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	21626228	13
February	15843540	12
March	11606314	13
April	4328316	12
May	2062321	10
June	6575888	10
July	228953	2
August	2095073	4
September	1605847	3
October	6288289	9
November	7987273	12
December	17081957	12
TOTALS	97330000	112

Note: Cassiar CSO information includes Cassiar North and East CSOs

Probable Years: Westridge, North Arm and Burrard Inlet

Winter-1970(October to April)

Summer-1990(May to September)

Probable Years: New Westminster Waterfront

Winter-1986(October to April)

Summer-1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	CLARK DRIVE OUTFALL #1 GVRD Russ Black <i>Vancouver</i> Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 18.6" 123° 4' 31.4" 5459530 494518		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-10.54 m 7.57 m 175 m 1.83 m (BHS)	
DIFFUSERS		No	
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 3, 5		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251
 BHS - Boston Horseshoe

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	156964119	20
February	129332464	20
March	105066895	19
April	24549570	10
May	6532111	8
June	48281408	9
July	351909	1
August	8753286	3
September	7013130	2
October	36494244	11
November	60393548	20
December	151747317	20
TOTALS	735480000	143

Note: Clark Drive information includes the following CSOs:
 Harbour West, Heatley, Vernon Relief, Clark #1 and #2

Probable Years: Westridge, North Arm and Burrard Inlet
Winter-1970(October to April)
Summer-1990(May to September)
Probable Years: New Westminster Waterfront
Winter-1986(October to April)
Summer-1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	CLARK DR. OUTFALL #2 GVRD Russ Black <i>Vancouver</i> Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 16.5" 123° 4' 34.2" 5459466 494461		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-7.10 m 4.13 m 115 m 2.44 m x 3.05 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 3, 5		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: see information on Clark Drive #1 CSO

		SOURCE GVS&DD	DATE 92/09/01
NAME	COLUMBIA STREET #1		
OWNER	Vancouver		
ENVIRONMENTAL CONTACT (1)	Jeff Addis		
MUNICIPALITY	Vancouver		
RECEIVING WATER BODY	Vancouver Harbour		
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 17' 12.8" 123° 6' 10.0" 5459354 492526	
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	N/A N/A 160 m 1.52 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION	No		
RECEIVING ENVIRONMENT DATA	No		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: see information on Columbia Street #2 CSO

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft)	Frequencies
January	1601000	9
February	907600	8
March	516300	13
April	115700	5
May	373400	5
June	826000	6
July	85630	2
August	207700	2
September	313300	2
October	578500	7
November	407900	5
December	1014000	10
TOTALS	6947030	74

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/C1
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	COLUMBIA STREET #2 Vancouver Jeff Addis Vancouver Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 5.8" 123° 6' 6.0" 5459137 492606		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-2.39 m 0.59 m (above water) < 50 m 1.22 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: see information on Columbia Street #1 CSO

		SOURCE GVRD	DATE 92/08/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	COLUMBIA STREET #3 Vancouver Jeff Addis Vancouver Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 13.6" 123° 6' 4.0" 5459378 492647		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-4.58 m 1.61 m < 50 m 0.61 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: see information on Columbia Street #1 CSO

		SOURCE GVS&DD	DATE 92/09/01
NAME	CROWE ST. EAST		
OWNER	Vancouver		
ENVIRONMENTAL CONTACT (1)	Jeff Addis		
MUNICIPALITY	Vancouver		
RECEIVING WATER BODY	False Creek		
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 16' 31.0" 123° 7' 72.0" 5457658 491903	Vancouver Vancouver
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	0.32 m above water < 50 m 1.52 m	Vancouver Vancouver
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	1331000	5
February	461200	5
March	149200	3
April	14050	1
May	12830	1
June	234300	5
July	0	0
August	102600	1
September	120800	1
October	262800	3
November	134700	3
December	435700	7
TOTALS	3259180	35

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME	DENMAN ST.		
OWNER	Vancouver		
ENVIRONMENTAL CONTACT (1)	Jeff Addis		
MUNICIPALITY	Vancouver		
RECEIVING WATER BODY	Coal Harbour		
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 17' 39.2" 123° 7' 51.4" 5460172 490479	
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	- 5.27 m. 2.30 m < 50 m 1.37 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION			
RECEIVING ENVIRONMENT DATA	No 1, 3, 5		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: see information on Burrard Street CSO

		SOURCE GVS&DD	DATE 92/08/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	DRAKE ST. Vancouver Jeff Addis Vancouver False Creek		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 16' 16.5" 123° 7' 10.0" 5457617 491311		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-6.30 m' 3.28 m < 50 m 1.83 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2, 5		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: see information on Burrard Street CSO

		SOURCE GVS&DD	DATE 92/08/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	DUNBAR ST. Vancouver Jeff Addis <i>Vancouver</i> Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 13' 10.8 123° 11' 7.0" 5451892 486508		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-2.58 m 0.18 m < 50 m 2.13 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 8		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu. ft.)	Frequency
January	4927619	10
February	2105657	11
March	1488950	14
April	188131	7
May	34837	3
June	734314	7
July	36862	2
August	317005	2
September	645681	2
October	952224	7
November	702623	10
December	2586547	15
TOTALS	14720000	90

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	EIGHTEENTH ST. New Westminster Steve Day New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 1.5" 122° 56' 15.6" 5449737 504541		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	N/A N/A < 50 m 0.46 m	New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 5, 6, 7		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	10058	1
February	0	0
March	83157	6
April	0	0
May	17199	1
June	23138	1
July	0	0
August	0	0
September	155919	3
October	25486	1
November	501829	4
December	143215	3
TOTALS	960000	20

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

			SOURCE GVS&DD	DATE 192/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY		EIGHTH ST. New Westminster Steve Day New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting		49° 11' 59.7" 122° 54' 35.0" 5449684 506577		
TREATMENT		No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-0.82 m 0.02 m < 50 m 0.70 m	New West. New West. New West.	
DIFFUSERS		No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA		No 7		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft)	Frequency
January	44791	4
February	0	0
March	111593	4
April	0	0
May	63513	3
June	72778	3
July	0	0
August	0	0
September	516710	4
October	72942	1
November	942687	4
December	364986	3
TOTALS	2190000	26

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DB	DATE 82/09/01
NAME	ENGLISH BAY		
OWNER	GVRD		
ENVIRONMENTAL CONTACT (1)	Russ Black		
MUNICIPALITY	<i>Vancouver</i>		
RECEIVING WATER BODY	English Bay		
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 17' 6.0" 123° 12' 4.5" 5459158 485364	
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-20.7 m 17.7 m 887 m 1.68 m	
DIFFUSERS	Yes		
DISCHARGE CHARACTERIZATION	No		
RECEIVING ENVIRONMENT DATA	No		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	7644940	6
February	3992650	6
March	2009330	8
April	576800	4
May	199300	1
June	1000000	4
July	0	0
August	638060	1
September	1164210	2
October	1740060	4
November	1572000	4
December	3983240	7
TOTALS	24520590	47

Probable Years: Westbridge, North Arm and Burrard Inlet

Winter-1970(October to April)

Summer-1990(May to September)

Probable Years: New Westminister Waterfront

Winter-1986(October to April)

Summer-1986-(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	FOURTH AVE. #1 New Wesminster Steve Day New Wesminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 4.0" 122° 55' 57.8" 5449815 504901		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	~0 m N/A < 50 m 0.46 m	New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Note: Fourth Avenue #1 CSO information includes Fourth Avenue #2 CSO

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume (cu. ft.)	Frequency
January	403357	9
February	156242	4
March	625245	6
April	213944	5
May	230111	7
June	116477	3
July	80880	2
August	0	0
September	601690	4
October	141412	2
November	1863567	8
December	1037076	9
TOTALS	5470000	59

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	FOURTH AVE. #2 New Westminster Steve Day New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 3.9" 122° 55' 57.0" 5449812 504917		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	~0 m N/A < 50 m 0.46 m	New West.
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Note: see information on Fourth Avenue #1 CSO

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	GILMORE GVRD Russ Black Burnaby Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 0' 36.0" 123° 0' 44.3" 5460065 499105	Burnaby Burnaby	
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-7.4 m 4.4 m < 50 m 0.25 m	Burnaby Burnaby Burnaby	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 4		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: Outfall details obtained from proposed outfall drawings (1931).

Note: Gilmore CSO information includes Carlton CSO

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.m)	Frequency
January	1362436	15
February	933994	11
March	709406	14
April	266564	10
May	127460	6
June	448358	9
July	25911	2
August	117656	4
September	121741	3
October	382585	10
November	500854	12
December	1003035	12
TOTALS	6000000	108

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 82/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	GLENBROOK GVRD Russ Black New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	N/A N/A N/A N/A		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-0.72 m 0.08 m (above water) < 50 m 2.59 m x 2.59 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	2875226	17
February	1148277	9
March	5063398	7
April	1332236	8
May	1496311	10
June	721110	4
July	483251	3
August	0	0
September	3677071	4
October	917239	3
November	14996169	9
December	8049710	10
TOTALS	40760000	84

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER	GRANVILLE ST. Vancouver		
ENVIRONMENTAL CONTACT (1) MUNICIPALITY	Jeff Addis Vancouver		
RECEIVING WATER BODY	False Creek		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 16' 25.7" 123° 7' 53.7" 5457903 490429		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	0.43 m above water < 50 m 1.22 m	Vancouver
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: see information on Burrard Street CSO

		SOURCE GVS&DD	DATE 92/08/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	HARBOUR WEST GVRD Russ Black Vancouver Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 7.9" 123° 5' 6.0" 5459201 493819		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-1.40 m 1.58 m (above water) < 50 m .41 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 3		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: see information on Clark Drive #1 CSO

		SOURCE GVS&DB	DATE 92/08/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	HEATHER ST. GVRD Russ Black Vancouver False Creek		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 16' 13.4" 123° 7' 2.4" 5457521 491464		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-8.30 m 5.28 m 100 m 2.44 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2, 5		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu. ft.)	Frequency
January	7532785	6
February	2365346	8
March	626790	4
April	63914	1
May	73667	2
June	1459707	6
July	0	0
August	482814	1
September	528858	1
October	1363694	3
November	476900	3
December	2168900	6
TOTALS	17143375	41

Probable Years: Westridge, North Arm and Burrard Inlet

Winter-1970(October to April)

Summer-1990(May to September)

Probable Years: New Westminster Waterfront

Winter-1986(October to April)

Summer-1986(May to September)

		SOURCE GVS&DD	DATE 82/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	HEATLEY AVE Vancouver Jeff Addis <i>Vancouver</i> Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 8.8" 123° 5' 6.2" 5459229 493612		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	< -0.71 m < 2.26 m (above) < 50 m 0.30 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 453 West 12th Avenue, Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: see information on Clark Drive #1 CSO

		SOURCE GVS&DD	DATE 92/09/01
NAME	HEMLOCK ST.		
OWNER	Vancouver		
ENVIRONMENTAL CONTACT (1)	Jeff Addis		
MUNICIPALITY	Vancouver		
RECEIVING WATER BODY	False Creek		
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 16' 20.5" 123° 7' 56.0" 5457742 490382	
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-4.39 m 1.37 m < 50 m 1.22 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	616300	10
February	248500	9
March	153900	14
April	17660	4
May	7868	2
June	56920	7
July	3153	1
August	33820	2
September	48480	2
October	93530	5
November	61890	8
December	288200	11
TOTALS	1630221	75

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DB	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	JERVIS ST. Vancouver Jeff Addis Vancouver False Creek		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 16' 48.1" 123° 8'20.3" 5458595 489892		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-0.75 m 2.27 m (above) 50 m 0.61 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Note: see information on Burrard Street CSO

		Source GVS&DD	Date 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	<i>LAUREL ST.</i> Vancouver Jeff Addis <i>Vancouver</i> False Creek		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 16' 8.5" 123° 7' 22.5" 5457365 491058		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-3.92 m 0.9 m 90 m 1.37 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 2, 5		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft)	Frequency
January	125415	4
February	22527	3
March	0	0
April	0	0
May	0	0
June	1839	1
July	0	0
August	8168	1
September	4535	1
October	16612	1
November	0	0
December	10904	1
TOTALS	190000	12

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 82/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	<i>MacDONALD ST.</i> GVRD Russ Black <i>Vancouver</i> Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 58.8" 123° 10' 3.1" 5451518 487800		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-2.54 m 0.34 m < 50 m 1.52 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 8		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	2125000	7
February	751700	7
March	402100	10
April	26020	4
May	8246	1
June	315900	7
July	11730	1
August	148500	1
September	276000	2
October	423100	4
November	210500	8
December	928600	11
TOTALS	5627396	63

Probable Years: Westridge, North Arm and Burrard Inlet

Winter-1970(October to April)

Summer 1990-(May to September)

Probable Years: New Westminster Waterfront

Winter-1986(October to April)

Summer-1986(May to September)

		SOURCE GVS&DD	DATE 82/08/01
NAME	MANITOBA ST.		
OWNER	GVRD		
ENVIRONMENTAL CONTACT (1)	Russ Black		
MUNICIPALITY	<i>Vancouver</i>		
RECEIVING WATER BODY	Fraser River		
LOCATION OF DISCHARGE: latitude	49° 12' 20.2"		
longitude	123° 6' 33.8"		
UTM - northing	5450319		
UTM - easting	492032		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-5.60 m 3.60 m < 50 m 1.83 m	
DIFFUSERS		No	
DISCHARGE CHARACTERIZATION		No	
RECEIVING ENVIRONMENT DATA		8	

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	2664808	12
February	2542493	10
March	1907167	17
April	311132	8
May	97971	4
June	1742101	8
July	0	0
August	342008	2
September	472754	3
October	1086824	8
November	1090980	10
December	3411762	12
TOTALS	15670000	94

Probable Years: Westridge, North Arm and Burrard Inlet

Winter-1970(October to April)

Summer-1990(May to September)

Probable Years: New Westminster Waterfront

Winter-1986(October to April)

Summer-1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	PARK LANE GVRD Russ Black Vancouver English Bay		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 25.0" 1,23° 8' 45.2" 5459736 489391		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-2.92 m 0.12 m (above water) 175 m 0.76 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 2		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: see information on Burrard Street CSO

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	ROYAL AVENUE New Westminster Steve Day New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 11' 52.0" 123° 55' 20.2" 5449445 505662		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	~ 0 m N/A 50 m 1.37 m	New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft.)	Frequency
January	24829	2
February	21852	2
March	110398	5
April	19059	2
May	22841	1
June	15741	1
July	10952	1
August	0	0
September	151633	3
October	35326	2
November	250562	4
December	106808	3
TOTALS	770000	26

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER	SAPPERTON GVRD Russ Black		
ENVIRONMENTAL CONTACT (1) MUNICIPALITY	New Westminster		
RECEIVING WATER BODY	Brunette River (Fraser River)		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 13' 37.4" 122° 53' 3.8" 5452703 508418		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	~ 2.5 m N/A < 50 m 0.91 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu. ft.)	Frequency
January	0	0
February	0	0
March	0	0
April	0	0
May	0	0
June	0	0
July	0	0
August	0	0
September	408616	3
October	8844	3
November	871246	5
December	361294	3
TOTALS	1650000	13

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/08/01
NAME	SHAUGHNESSY ST.		
OWNER	Vancouver		
ENVIRONMENTAL CONTACT (1)	Jeff Addis		
MUNICIPALITY	Vancouver		
RECEIVING WATER BODY	Fraser River		
LOCATION OF DISCHARGE: latitude	49° 12' 7.0"		
longitude	123° 7' 30.3		
UTM - northing	5449913		
UTM - easting	490888		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-2.70 m 0.70 m < 50 m 1.52 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION			
RECEIVING ENVIRONMENT DATA	No 5, 6, 7, 8		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft.)	Frequency
January	612200	6
February	254900	6
March	86150	9
April	4312	1
May	2431	1
June	136500	6
July	0	0
August	79410	2
September	96940	3
October	127600	2
November	84620	3
December	199500	8
TOTALS	1684563	47

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	<i>SIXTEENTH ST.</i> New Westminster Steve Day <i>New Westminster</i> Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 3.9" 122° 55' 58.5" 5449812 504887		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	~0.5 m above water < 50 m 0.69 m	New West. New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	701789	15
February	316093	9
March	903123	7
April	383005	7
May	367529	9
June	137263	4
July	148776	3
August	0	0
September	668745	4
October	185933	3
November	1891474	9
December	1406270	9
TOTALS	7110000	79

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	SIXTH ST. New Westminster Steve Day New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 6.8" 122° 54' 21.5" 5449903 506850		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	~ 0 m above water < 50 m 0.91 m	New West. New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	12828	1
February	0	0
March	112943	5
April	0	0
May	43028	3
June	57413	1
July	0	0
August	0	0
September	404353	4
October	60550	1
November	1443164	4
December	345720	3
TOTALS	2480000	22

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DB	DATE 92/09/01
NAME	SLOCAN STREET		
OWNER	Vancouver		
ENVIRONMENTAL CONTACT (1)	Jeff Addis		
MUNICIPALITY	Vancouver		
RECEIVING WATER BODY	Vancouver Harbour		
LOCATION OF DISCHARGE:	latitude longitude UTM - northing UTM - easting	49° 17' 37.0" 123° 5' 52.2" 5460101 492886	
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-0.56 m 2.42 m (above water) < 50 m 0.91 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION	No		
RECEIVING ENVIRONMENT DATA	No		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequencies
January	0	0
February	0	0
March	0	0
April	0	0
May	0	0
June	14809	1
July	0	0
August	5191	1
September	0	0
October	0	0
November	0	0
December	0	0
TOTALS	20000	2

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer 1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	SOUTH HILL GVRD Russ Black Vancouver Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 18.5" 123° 5' 33.5" 5450265 493252		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-7.30 m 5.50 m 80 m 1.83 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 5, 6, 7, 8		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu. ft.)	Frequency
January	9760962	14
February	7888156	10
March	6725321	11
April	1465046	12
May	379974	8
June	4187651	5
July	20289	2
August	568608	4
September	624810	2
October	2664869	9
November	3957610	16
December	10076705	13
TOTALS	48320000	106

Probable Years: Westridge, North Arm and Burrard Inlet

Winter-1970(October to April)

Summer-1990(May to September)

Probable Years: New Westminster Waterfront

Winter-1986(October to April)

Summer-1986(May to September)

		SOURCE GVS&DB	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	TENTH ST. New Westminster Steve Day New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 11' 54.5" 122° 54' 47.0" 5449523 506334		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	< 0.10 m < 0.90 m (above water) 75 m 0.63 m	New West. New West. New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 7		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	76686	6
February	17264	2
March	158393	6
April	30579	3
May	65006	3
June	52553	1
July	11041	1
August	0	0
September	418039	3
October	67578	2
November	733800	6
December	249059	6
TOTALS	1880000	39

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/0901
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	TERMINAL AVENUE Vancouver Jeff Addis Vancouver False Creek		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 16' 24.0" 123° 6' 4.2" 5457847 492641		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-4.69 m 1.67 m < 50 m 2.74 m x 3.35 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 2, 5		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft.)	Frequency
January	46930	2
February	3070	1
March	0	0
April	0	0
May	0	0
June	0	0
July	0	0
August	0	0
September	0	0
October	0	0
November	0	0
December	0	0
TOTALS	50000	3

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	THIRD AVE. New Westminster Steve Day New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 12' 0.2" 122° 55' 43.8" 5449698 505184		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	~0 m N/A 70 m N/A	New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft.)	Frequency
January	23626	4
February	0	0
March	67672	4
April	0	0
May	41006	2
June	45042	1
July	0	0
August	0	0
September	317388	4
October	48852	1
November	457133	2
December	139281	2
TOTALS	1140000	20

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 192/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	TWENTIETH ST. New Westminster Steve Day New Westminster Fraser River		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 11' 55.0" 122° 56' 32.7" 5449536 504195		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	0.57 m 1.57 m < 50 m 0.51 m	New West.	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 5, 6, 7, 8		

(1) 511 Royal Ave., New Westminster, V3L 1H9; Tel.521-3711; FAX 521-3895

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.m.)	Frequency
January	52546	3
February	9872	1
March	114506	3
April	8766	1
May	23535	1
June	18032	1
July	7187	1
August	0	0
September	126627	2
October	19977	1
November	422370	2
December	166580	5
TOTALS	970000	21

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	VERNON RELIEF OUTFALL GVRD Russ Black Vancouver Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 15.7" 123° 4' 35.9" 5459441 494427		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-7.43 m 4.46 m 80 m 2.13 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 3, 5		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: see information on Clark Drive #1 CSO

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	VICTORIA DRIVE Vancouver Jeff Addis Vancouver Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 21.0" 123° 3' 50.2" 5459604 495350		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-12.52 m 9.55 m 205 m 1.22 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No No		

(1) 453 West 12th Ave., Vancouver, V5Y 1V4; Tel. 873-7011; FAX 873-7419

Estimated Monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu ft.)	Frequency
January	7313178	14
February	5634237	13
March	4716485	16
April	1634650	11
May	726580	6
June	2573003	9
July	29716	1
August	797239	3
September	557656	2
October	2525621	10
November	3206468	11
December	6455167	14
TOTALS	36170000	110

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer 1990/May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	WESTRIDGE GVRD Russ Black Burnaby Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 20.5" 122° 57' 25.0" 5459587 503131		
TREATMENT	No		
OUTFALL: geodetic elevation depth distance from shore diameter	-14.48 m 11.46 m 80 m 1.22 m		
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 3		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	5973409	11
February	3358195	12
March	2677383	13
April	472288	7
May	166840	5
June	919911	7
July	74991	3
August	421532	3
September	409200	1
October	1018058	8
November	1343278	11
December	4724914	13
TOTALS	21560000	94

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER	WILLINGDON AVE. # 1 GVRD Russ Black Burnaby Vancouver Harbour		
ENVIRONMENTAL CONTACT (1) MUNICIPALITY			
RECEIVING WATER BODY			
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 28.0" 123° 0' 4.7" 5459818 499905		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-2.55 m 0.47 m (above water) 75 m 0.76 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 5		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: Willingdon Avenue #1 CSO includes Willingdon Avenue #2 CSO

Estimated monthly CSO Overflow Volumes and Frequencies

Month	Volume(cu.ft.)	Frequency
January	5030984	13
February	3225904	14
March	2336105	16
April	883378	11
May	431038	6
June	1702136	9
July	93332	2
August	420030	4
September	492804	3
October	1380055	10
November	1698059	11
December	3346175	11
TOTALS	21040000	110

Probable Years: Westridge, North Arm and Burrard Inlet

Winter -1970(October to April)

Summer -1990(May to September)

Probable Years: New Westminster Waterfront

Winter -1986(October to April)

Summer -1986(May to September)

		SOURCE GVS&DD	DATE 92/09/01
NAME OWNER ENVIRONMENTAL CONTACT (1) MUNICIPALITY RECEIVING WATER BODY	WILLINGDON AVE. # 2 GVRD Russ Black Burnaby Vancouver Harbour		
LOCATION OF DISCHARGE: latitude longitude UTM - northing UTM - easting	49° 17' 27.1" 123° 0' 4.5" 5459790 499909		
TREATMENT	No		
OUTFALL:	geodetic elevation depth distance from shore diameter	-0.94 m 2.08 m (above water) < 50 m 1.52 m	
DIFFUSERS	No		
DISCHARGE CHARACTERIZATION RECEIVING ENVIRONMENT DATA	No 1, 5		

(1) 4330 Kingsway, Burnaby, V5H 4G8; Tel. 432-6200; FAX 432-6251

Note: see information on Willingdon Avenue #1 CSO

APPENDIX B

Environmental Data

Studies of the combined sewer overflow receiving environment.(1992/09/01).

NO.	REFERENCE	CONTACT	PARAMETERS
1	A Summary of Regional Office Studies from 1974 - 1990	B.C. Environment Mr. Brent Moore Tel. 584-8822	pH conductivity non-filtrable residue turbidity salinity temperature dissolved oxygen ammonia-nitrogen Ca, Cr, Cu, Fe, Pb, Hg, Ni, Zn As (only Harbour Outfalls) Ba (only east of 2nd Narrows) phenols (only east of 2nd Narrows) total sulphide (only 1st to 2nd Narrows) ethylene dichloride (only Harbour Outfalls) mono-, bi-, tributyl tin (only False Creek & 1st to 2nd Narrows)
2	Bathing beach monitoring program	Greater Vancouver Regional District Ms. Judy Smith Tel. 436-6733	fecal coliforms enterococci
3	Burrard Inlet Environmental Monitoring	B.C. Environment Mr. Doug Walton Tel. 584-8822	pH conductivity temperature salinity fecal coliforms non-filtrable residue total residue total organic carbon total inorganic carbon total organic nitrogen total Kjeldahl nitrogen total nitrogen dissolved ammonia nitrate, nitrite nitrate & nitrite total dissolved phosphate Al, Cd, Cu, Fe, Ni, Pb, Zn oils & grease
4	British Columbia Inlets Cruises	University of British Columbia Mr. Al Lewis Tel. 822-3626	temperature salinity conductivity dissolved oxygen sigma-t
5	The Attainment of Ambient Water Quality Objectives in 1990	B.C. Environment Mr. Leslie Swain Tel. 387-9518	Burrard Inlet & False Creek Outfalls: turbidity dissolved oxygen ammonia-nitrogen (except Alma) suspended solids (except Alma) total Pb, Zn, Cu total Hg, Fe (except Willingdon) total Ni, Cd (except Alma) total Ba, pH (only Willingdon) fecal coliforms (only Alma) enterococci (only Alma) Fraser River Outfalls: dissolved oxygen (except 18th St.) fecal coliforms
6	The Attainment of Ambient Water Quality Objectives in 1989	B.C. Environment Mr. Leslie Swain Tel. 387-9518	fecal coliforms dissolved oxygen 18th & 20th Street only: suspended solids ammonia-nitrogen pH total Cu, Pb, Zn 20th Street only: chlorophenols (tri, tetra, penta)
7	The Attainment of Ambient Water Quality Objectives in 1988	B.C. Environment Mr. Leslie Swain Tel. 387-9518	fecal coliforms dissolved oxygen 18th & 20th Street only: pH chlorophenols (tri, tetra, penta) 20th Street only: chlorophenols (tri, tetra, penta)
8	Follow-Up Report on Pollution of the Fraser River's North Arm November 1987	Greater Vancouver Regional District Mr. H. McConnell Tel. 432-6200	fecal coliforms pH ammonia conductivity phosphate chloride

Studies of the nature of combined sewer overflow discharging to the Fraser River Basin and Burrard Inlet (1992/09/01).

LOCATION	Reference	DISCHARGE CHARACTERIZATION		Parameters
		Contact		
Heather Laurel Hemlock Maple Arbutus Balacava Discovery Crowe St. Yards	CSO Abatement Study Technical Report	Prepared by: City of Vancouver GVS&DD Project Director: Mr. H.D. McConnell	Estimated: BOD TSS Fecal Coliforms	
Vancouver Sewerage Area	GVRD Liquid Waste Management Plan Stage 1 CSO & UR Committee Report June 1988	GVRD Mr. H.D. McConnell	Estimated: BOD, COD fecal coliforms SS PH O & G total phosphorous chloroform phenol naphthalene di-octyl phthalate nitrogen - NH ₃ Kjeldahl nitrate/nitrite total metals & Inorganics - Al, As, Cd, Cr, Cu, Fe, Hg, Mn, Ni, Pb	

APPENDIX C

Industries holding Waste Discharge Permits

Industries In Burnaby, New Westminster and Vancouver holding Waste Discharge Permits (GVRD 1992/08/06).

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
BURNABY						
1	Al's Salad King Ltd.	4121 Halifax Street	5216*	from 4121 Halifax: max. daily flow < 125 m ³ /d from 4145 Halifax: max. daily flow < 250 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL/STORM/COOLING WASTE except: O & G < 150 mg/L PH 5.5 - 10.5 SS < 600 mg/L	Cassiar Clark
2	Al's Salad King Ltd.	4145 Halifax Street			(Mar. 10/92) (Mar. 10/92) (Mar. 10/92)	
3	Al's Salad King Ltd.	1738 Gilmore Street				
4	Baxter Corporation	8590 Baxter Place	3741	max. < 25 m ³ /d	PH 5.5 - 10.5 BOD < 500 mg/L	STP
5	B.C. Transit	3750 Kitchener Street	5512	maintenance area: max. < 90 m ³ /d daily ave./month < 60 m ³ /d wash rack: max. < 90 m ³ /d daily ave./month < 60 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL/STORM/COOLING WASTE except: O & G (HC frac.) < 60 mg/L O & G (HC frac.) < 15 mg/L	Cassiar Clark
6	Chevron Canada Ltd.	6751 Lougheed Highway	ST	max. < 120 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: PH 5.5 - 10.5 O & G (HC frac.) < 15 mg/L total SS < 600 mg/L total Phenols < 1.0 mg/L total Sulphide < 10 mg/L Al < 50 mg/L Cd < 0.2 mg/L Cr < 4.0 mg/L Cu < 2.0 mg/L Fe < 10.0 mg/L	STP
7	Circuit Graphics Ltd.	8070 Winston Street	3362	max. daily flow < 420 m ³ /d monthly ave. daily flow < 370 m ³ /d	NO PROHIBITED/SPECIAL/STORM/COOLING (Jul. 19/92) WASTE except: "batch" discharges "non-batch" discharges (see permit for details)	STP
8	Dependable Plating Ltd.	3857 East 1st Avenue V5C 3V6	3041	max. daily flow/month < 7 m ³ /d	NO SPENT PLATING SHOP SOLUTIONS & STATIC WATER RINSE WITHOUT PRIOR AUTHORIZATION FROM MANAGER except: PH 5.5 - 10.5 total cyanide < 2.0 mg/L total cyanide < 1.0 mg/L O & G (HC frac.) < 15.0 mg/L total Cr < 8.0 mg/L total Cr < 4.0 mg/L total Cu < 4.0 mg/L total Cu < 2.0 mg/L total Pb < 2.0 mg/L total Pb < 1.0 mg/L total Ni < 4.0 mg/L total Ni < 2.0 mg/L total Zn < 6.0 mg/L total Zn < 3.0 mg/L	Cassiar Clark

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
9	East-West Alum Craft Ltd.	7465 Conway Avenue V5C 3V6	296	max. < 225 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: O & G (HC frac.) < 15 mg/L	STP
10	Foremost Foods Ltd.	7990 Enterprise Street	104	max. < 600 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: SS < 600 mg/L (Nov. 15/92) total O & G < 150 mg/L (Nov. 15/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	STP
11	Fraser Valley Milk Producers Cooperative Association	6800 Lougheed Highway V5A 1W2	104	max. < 2600 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: O & G < 150 mg/L (Nov. 15/92) pH 5.5 - 10.5 (Nov. 30/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	STP
12	Fraser Valley Milk Producers Cooperative Association	4047 Lozells Avenue	1049	max. < 1000 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Nov. 15/92) SS < 600 mg/L (Dec. 31/92) total O & G < 150 mg/L (Dec. 31/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	STP
13	Freightliner of Canada Ltd.	4242 Phillips Avenue V5A 2X3	3241	max. daily flow/month < 15 m3/d ave. daily flow/month < 10 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL/STORM/COOLING WASTE except: O & G (HC frac.) < 15 mg/L	STP
14	Gibbs/Nortac Industries Ltd.	7455 Conway Avenue V5E 2P7	3931	no limit set	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: O & G (HC frac.) < 15 mg/L	STP
15	International Sausage Co. Ltd.	1846 Gilmore Avenue V5C 4T4	1011	ave. daily flow/month < 13 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL/STORM/COOLING WASTE except: cooling water from the smokehouse air conditioner total O & G < 150 mg/L	Cassiar Clark
16	J.D. Sweld Ltd.	7542 Gilley Avenue V5J 4X5	101	max. < 55 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: total O & G < 150 mg/L	STP
17	Lucerne Foods Ltd.	7650 - 18th Street	104	max. < 700 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Nov. 15/92) total O & G < 150 mg/L (Nov. 15/92) SS < 600 mg/L (Feb. 1/93) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	STP
18	Lucerne Foods Ltd.	7185 - 11th Avenue	1049	max. < 300 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Nov. 15/92) SS < 600 mg/L (Nov. 15/92) total O & G < 150 mg/L (Nov. 15/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	STP

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
19	Lucerne Foods Ltd. - Jam and Jelly Division	7155 - 11th Avenue V3N 2M5	1031	max. peak daily flow < 1200 m3/d max. ave. daily flow < 700 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL/COOLING (Jan. 1/93) WASTE except: total O & G < 150 mg/L (Dec. 16/91) pH 5.5-10.5 (Dec. 1/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	STP
20	Mount Seymour Pet Foods Ltd.	1635 MacDonald Avenue	1053	ave. daily flow/month < 220 m3/d max. daily flow/month < 250 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL/STORM/COOLING WASTE except: storm waste from work yard storm waste from work yard O & G < 150 mg/L pH 5.5 - 10.5	Cassiar Clark
21	Nabob Foods Limited	3131 Lake City Way	1091	max. daily flow/month < 570 m3/d ave. daily flow/month < 520 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL/STORM/COOLING WASTE except: total O & G < 150 mg/L (Apr. 15/92) O & G (HC frac.) < 15 mg/L (Apr. 15/92) total Cyanide < 8.0 mg/L (Apr. 15/92) total Cyanide < 1.0 mg/L (Oct. 15/92) total sulphide < 4.0 mg/L (Apr. 15/92) total sulphide < 1.0 mg/L (Oct. 15/92) pH 5.0 - 10.5 (Apr. 15/92)	STP
22	Prism Systems Inc. Lentronics Division	7025 Greenwood Street V5A 1X7	3351	max. daily flow/month < 40 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL/COOLING (Mar. 31/92) WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L total Cyanide < 1.0 mg/L O & G (HC frac.) < 15.0 mg/L Cd < 0.2 mg/L Mn < 5.0 mg/L Cr < 4.0 mg/L Ni < 2.0 mg/L Cu < 2.0 mg/L Zn < 3.0 mg/L Fe < 10.0 mg/L Pb < 1.0 mg/L	STP
23	Royal City Foods Ltd.	3676 Bainbridge Avenue V5A 2T4	1031	max. < 4000 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL/COOLING (Jan. 1/93) WASTE except: O & G < 150 mg/L (Jan. 1/93) pH 5.5 - 10.5 (Jan. 1/93) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	STP
24	Weiser Inc.	6700 Beresford Street V5E 1Y2	3061	max. daily flow < 2000 m3/d ave. daily flow < 2400 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: O & G (HC frac.) < 15 mg/L	STP
25	Western Wire Products Ltd.	6969 Shirley Avenue V5J 4R4	3041	max. daily flow/month < 50 m3/d ave. daily flow/month < 20 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL/STORM/COOLING WASTE except: pH 5.5 - 10.5 (Apr. 1/92) O & G (HC frac.) < 15.0 mg/L (Apr. 1/92) cyanide < 1.0 mg/L (Sept. 1/92) Zn < 3.0 mg/L (Nov. 1/92)	STP

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
NEW WESTMINSTER						
26	Labatt Brewing Company Ltd.	210 Brunette Avenue V3L 4Z2	1131	max. daily flow/month < 12,000 m ³ /d ave. daily flow/month < 7,000 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Oct. 1/92) (Oct. 1/92) (Jan. 1/94) (Jan. 1/96)	Eighth St.
27	Petro-Canada	132 - 12th Street	ST	max. < 400 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 O & G (HC frac.) < 15mg/L total SS < 600 mg/L total phenols < 1.0 mg/L total sulphide < 1.0 mg/L Al < 50 mg/L Cd < 0.2 mg/L Cr < 4.0 mg/L Cu < 2.0 mg/L Fe < 10.0 mg/L Pb < 1.0 mg/L Mn < 5.0 mg/L Ni < 2.0 mg/L Zn < 3.0 mg/L (Oct. 1/92) (Jan. 1/94) (Jan. 1/94) (Jan. 1/96)	Third Ave. Fourth Ave.
28	Scott Paper Limited	1625 - 5th Avenue	2793	max. daily flow < 2900 m ³ /d ave. daily flow < 2000 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: total SS < 1000 mg/L total SS < 600 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Nov. 15/91) (Jan. 1/94) (Jan. 1/94) (Jan. 1/96)	Sixteenth St. Fourth Ave. Third Ave.
29	Vancouver Auto Auction	805 Boyd Street V3M 5X2	6391 6352	wash rack: max. daily flow/month < 150 m ³ /d ave. daily flow/month < 70 m ³ /d detailing operation: max. daily flow/month < 7 m ³ /d ave. daily flow/month < 2 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL/STORM/COOLING WASTE except: O & G < 60 mg/L O & G < 15 mg/L total BTEX < 1.0 mg/L total SS < 600 mg/L (Aug. 1/92) (Jan. 1/93) (Jan. 1/93) (Aug. 1/92)	STP
VANCOUVER						
30	Acme Plating & Silver Shop Ltd.	1530 West 6th Avenue V6J 1K2	3041 3921	max. < 25 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 Cyanide 1.0 mg/L Ag < 1.0 mg/L Zn < 3.0 mg/L Cu < 2.0 mg/L Cr < 4.0 mg/L	Arbutus St. English Bay Alma-Discovery
31	Aero Garments Ltd.	333 Woodland V5L 3P6	24	max. < 60 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD<500mg/L (Jan. 1/96)	Clark Vernon

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
32	Aero Trading Co. Ltd.	8558 Fraser Street V5X 3Y3	1021	max. < 800 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/92) total SS < 600 mg/L (Jan. 1/92) O & G < 150 mg/L (Jan. 1/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	South Hill Angus Dr.
33	Albion Fisheries Ltd.	1077 Great Northern Way V5T 1E1	1021*	max. < 500 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/92) total SS < 600 mg/L (Jan. 1/92) O & G < 150 mg/L (Jan. 1/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	Clark Vernon Terminal
34	Alpha Cine Services Ltd.	916 Davie Street V6Z 1B8	2821	max. < 100 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 Fe < 10.0 mg/L Ag < 1.0 mg/L Cyanide < 1.0 mg/L BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	Granville St. English Bay Alma-Discovery
35	Apex Freshcut	1100 - 1140 Venables Street V6A 2E2	5216*	max. < 250 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/93) total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	Clark Vernon Terminal
36	Astra Industries Inc.	329 Railway V6A 1A5	1021	max. < 400 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/93) total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	Clark Vernon Heatley Harbour West
37	Avalon Dairy Ltd.	5805 Wales St. V5R 3N5	104	max. < 150 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 15/93) total SS < 600 mg/L (Jan. 15/93) O & G < 150 mg/L (Jan. 15/93) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	Clark Vernon
38	Bornstein Seafoods Canada Ltd.	8383 Crompton V5X 4J1	1021	max. < 550 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/92) total SS < 600 mg/L (Jan. 1/92) O & G < 150 mg/L (Jan. 1/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	Angus Dr.

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
39	Canadian Airlines International Inc.	P.O. Box 23020 - 6001 Grant McConachie Way V7B 1V1	4523	max. daily flow/month < 3000 m ³ /d ave. daily flow/month < 1585 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L total Cyanide < 1.0 mg/L total O & G < 150 mg/L O & G (HC frac.) < 15 mg/L total Phenol < 1.0 mg/L BOD < 1000 mg/L Al < 50 mg/L Cd < 0.2 mg/L Cr < 4.0 mg/L Co < 5.0 mg/L Cu < 2.0 mg/L Fe < 10.0 mg/L BOD < 500 mg/L Zn < 3.0 mg/L	STP
40	Canadian Fishing Company	0 Gore, North Foot V6A 2Y7	1021	max. < 2900 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L	Columbia St. Clark
41	Canadian Linen Supply Co. Ltd.	1200 Richards St. V6B 2R2	9721	max. < 400 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L free chlorine should not be detectable temperature < 65 C	Drake St. English Bay Alma-Discovery
42	Central Foods Co. Ltd.	888 Malkin Avenue V6A 2K6	5216*	max. < 160 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L	Clark Vernon Terminal
43	Chevalier Tower Properties	800 Hamilton Street	SR	max. < 100 L/min max. < 20 m ³ /d	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Drake St. English Bay Alma-Discovery
44	Intrawest Development Corp. Vehicle Emission Inspection Centre	8450 Fraser Street V5X 3Y4	SR	max. < 30 L/min max. < 20 m ³ /d	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Angus Dr.

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
45	Fletchers Fine Foods Ltd.	8385 Fraser Street V5X 3X8	1011	max. < 1500 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jan. 1/92) (Jan. 1/94)	South Hill Angus Dr.
46	Freybe Sausage Limited	1756 Franklin Street V5L 1P7	1011	max. < 570 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jul. 1/92) (Jul. 1/92) (Jul. 1/92) (Jan. 1/94) (Jan. 1/96)	Clark Vernon
47	Gastown Film Labs	52 West Second Avenue V5Y 1B3	2821	max. < 40 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: total SS < 600 mg/L total Ag < 1.0 mg/L pH 5.5 - 10.5 total Cyanide < 1.0 mg/L	Crowe St. E. English Bay Alma-Discovery
48	G.V.R.D.	3720 Welwyn Street	SR	max. < 136 L/min max. 165 m3/d	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Clark Vernon
49	Hi-To Fisheries Ltd.	1575 Vernon V6A 3P8	1021	max. < 400 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jan. 1/92) (Jan. 1/92) (Jan. 1/92) (Jan. 1/94) (Jan. 1/96)	Clark Vernon
50	Hudson Plating Co. Ltd.	275 West 5th Avenue V5Y 1J3	3041	max. < 750 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L cyanide < 1.0 mg/L Cr < 4.0 mg/L Cu < 2.0 mg/L Ni < 2.0 mg/L Zn < 3.0 mg/L Cd < 0.2 mg/L Fe < 10.0 mg/L O & G, petroleum < 15.0 mg/L (Jul. 1/92) (Jul. 1/92) (Jul. 1/92) (Jul. 1/92) (Jul. 1/92) (Jul. 1/92) (Jul. 1/92) (Jul. 1/92)	Crowe St. E. English Bay Alma-Discovery
51	Intercontinental Packers Ltd.	9050 Shaughnessy St. V6P 6E1	1011	max. < 1300 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jan. 1/92) (Jan. 1/94)	Angus Dr.

NO	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
52	Camsix Development Ltd.	3055 Cambie Street	SR	max. < 150 L/min max. < 40 m ³ /d	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Crowe St. East Heather St.
53	J.S. McMillan Fisheries Ltd.	2199 Commissioner Street V5L 1A4	1021	max. < 1500 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jan. 1/94)	Victoria Clark
54	Keefer Laundry (1970) Ltd.	227 E. Georgia Street V6A 1Z6	9721	max. < 120 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L temperature < 65 C (Jan. 1/94) (Jan. 1/96)	Clark Terminal
55	Kiku Fisheries Ltd.	1355 Parker Street V5L 2J9	1021	max. < 100 m ³ /d	NO PROHIBITED/RESTRICTED/SPÉCIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 500 mg/L (Nov. 15/92) (Jan. 1/96)	Clark Vernon
56	Concord Pacific Developments	Pacific Place	SR	max. < 450 L/min max. < 230 m ³ /d	NO PROHIBITED/RESTRICTED WASTE except: total PCB < 0.01 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Drake St. English Bay Alma-Discovery
57	Modern Auto Plating Ltd.	60 East Fifth Avenue V5T 1G8	3041	max. < 150 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L Cyanide < 1.0 mg/L Cr < 4.0 mg/L Cu < 2.0 mg/L NI < 2.0 mg/L Fe < 10.0 mg/L O & G (petroleum) < 15.0 mg/L (Jan. 1/92) (Jan. 1/92) (Jan. 1/92) (Jan. 1/92) (Jan. 1/92) (Jan. 1/92) (Jan. 1/92)	Crowe St. E. English Bay Alma-Discovery
58	Molson Breweries	1550 Burrard Street V6J 3G5	1131	max. < 4500 m ³ /d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Mar. 31/93) (Jan. 1/94)	Hemlock St. English Bay Alma-Discovery
59	Chevron Canada Ltd.	5736 Main St.	SR	max. < 158 m ³ /d max. < 110 L/min	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15.0 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Crowe St. East Heather St. English Bay

NO	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
60	Petro-Canada	1743 Burrard St. V7M 2H5	SR	max. < 14 L/min max. < 21 m3/d	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15.0 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Hemlock St. English Bay Alma-Discovery
61	Morrow Environmental Consultants	1026 Powell St. V7M 2H5	SR	max. < 110 L/min max. < 158 m3/d	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15.0 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Clark Vernon
62	Nalley's Canada Ltd.	1330 East Sixty-Sixth Ave. V6B 1Y1	1093 1031 1099	max. < 150 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L total O & G < 150 mg/L BOD < 1000 mg/L (Jan. 1/94) BOD < 1000 mg/L (Jan. 1/96)	Angus Dr.
63	North Sea Products Ltd.	1670 East South Kent Avenue V5P 2S7	1021	max. < 250 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/92) total SS < 600 mg/L (Jan. 1/92) total O & G < 150 mg/L (Jan. 1/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	Borden St. Angus Dr.
64	Chevron Canada Ltd.	7525 Cambie Street	SR	max. < 50 L/min max. < 72 m3/d	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15.0 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Manitoba St. Angus Dr. Cambi St.
65	Pacific Plating Ltd.	1226 Frances St. V6A 1Z5	3041	max. < 50 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/92) total SS < 600 mg/L (Jan. 1/92) Cyanide < 1.0 mg/L (Jan. 1/92) Cr < 4.0 mg/L (Jan. 1/92) Cu < 2.0 mg/L (Jan. 1/92) Ni < 2.0 mg/L (Jan. 1/92) Fe < 10.0 mg/L (Jan. 1/92) O & G (petroleum) < 15.0 mg/L (Jan. 1/92)	Clark Vernon
66	Pacific Press Ltd.	2250 Granville St. V6H 3G2	281	max. < 40 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total Ag < 1.0 mg/L total Fe < 10.0 mg/L total Cr < 4.0 mg/L BOD < 500 mg/L (Jan. 1/96)	Arbutus St. English Bay Alma-Discovery
67	Pay Less Service Station	1995 Kingsway V5N 2T1	SR	max. < 100 L/min max. < 22 m3/d	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15.0 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Clark Vernon

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
68	Prince Rupert's Fishermen's Cooperative Association	2851 Commissioner V5K 1A3	1021	max. < 1900 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/92) total SS < 600 mg/L (Jan. 1/92) O & G < 150 mg/L (Jan. 1/92) BOD < 1000 mg/L (Jan. 1/92) BOD < 500 mg/L (Jan. 1/94)	Slocan Victoria Clark
69	Ronald's Printing	1070 S.E. Marine Drive V5X 2V4	281	max. < 40 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/96) total Ag < 1.0 mg/L total Fe < 10.0 mg/L BOD < 500 mg/L	South Hill Angus Dr.
70	Seafood Products Company	2727 Commissioner Street V5K 1A2	1021	max. < 300 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/92) SS < 600 mg/L (Jan. 1/92) O & G < 150 mg/L (Jan. 1/92) BOD < 1000 mg/L (Jan. 1/94) BOD < 500 mg/L (Jan. 1/96)	Slocan Victoria Clark
71	Smithe Investments	950 - 980 Cambie Street V6E 2H7	SR	max. < 50 m3/d max. < 230 L/min	NO PROHIBITED/RESTRICTED WASTE except: TEH < 15.0 mg/L total BETX < 1.0 mg/L total PAH < 0.05 mg/L	Drake St. English Bay Alma-Discovery
72	Sunrise Markets Inc.	729 Powell Street V6A 1H5	1099	max. < 400 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/94) total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L (Jan. 1/96) BOD < 500 mg/L	Clark Heatley Harbour West
73	Vancouver Fancy Meats Ltd.	1055 Vernon Drive V6A 3P4	1011	max. < 500 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/94) total SS < 600 mg/L total O & G < 150 mg/L (Jan. 1/96) BOD < 1000 mg/L BOD < 500 mg/L	Clark Vernon
74	Versacold Canada Corporation	2115-2165 Commissioner St. V5L 1A6	1021 4791	max. < 1400 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Jan. 1/94) total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L	Victoria Clark
75	West Coast Reduction Ltd.	105 N. Commercial Dr. V5L 4V7	1011	max. < 2000 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 (Dec. 1/92) total SS < 600 mg/L (Dec. 1/92) O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jan. 1/94)	Clark

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
76	West Coast Woollen Mills (1986) Limited	440 Clarke Dr. V5L 3H4	1821	max. < 120 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jan. 1/94) (Jan. 1/96)	Clark Vernon
77	Western Pro Film Labs Ltd.	1325 Boundary Road V5K 4T9	2821	max. < 100 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 Fe < 10.0 mg/L Ag < 1.0 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jan. 1/94) (Jan. 1/96)	Cassiar Clark
78	Weston Bakeries Ltd.	3650 Lougheed Hwy. V5M 4J6	1072	max. < 50 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 500 mg/L (Jan. 1/96)	Clark
79	White Spot Limited	1126 S.E. Marine Dr. V5X 2V7	521*	max. < 700 m3/d	NO PROHIBITED/RESTRICTED/SPECIAL WASTE except: pH 5.5 - 10.5 total SS < 600 mg/L O & G < 150 mg/L BOD < 1000 mg/L BOD < 500 mg/L (Jan. 1/92) (Jan. 1/92) (Jan. 1/92) (Jan. 1/94) (Jan. 1/96)	Angus Dr.

Note:BTEX - Benzene/Toluene/Ethylbenzene/Xylene

HC - hydrocarbon

PAH - Polycyclic Aromatic Hydrocarbons

(should include Anthracene, Pyrene, Naphthalene, Phenanthrene, Benz(a)Anthracene and Benzo(a)Pyrene)

PCB - Polychlorinated Biphenyls

O & G - oil and grease

SS - suspended solids

STP - sewage treatment plant

Industries in Burnaby, New Westminster and Vancouver holding Waste Discharge Orders (GVRD 1992/08/06).

NO.	INDUSTRY NAME	ADDRESS	INDUSTRY TYPE (SIC CODE)	PERMITTED RATES OF DISCHARGE	PERMITTED DISCHARGE CRITERIA	DISCHARGE LOCATION
BURNABY						
A	Chevron Canada	5201 Penzance Dr.	3611	ave. daily < 2600 m3/d	pH 6.0 - 9.5 SS < 40 mg/L total BOD < 100 mg/L phenols < 15 mg/L sulphides < 5 mg/L phosphate < 3 mg/L total Cr < 1 mg/L total Zn < 1 mg/L total Pb < 1 mg/L total cyanide < 0.4 mg/L O & G < 20 mg/L	Clark
B	Shell Canada	201 Kensington Ave. V5B 4B2	3611	ave. daily < 2500 m3/d	pH 6.0 - 9.5 SS < 40 mg/L total BOD < 100 mg/L phenols < 15 mg/L sulphides < 5 mg/L phosphate < 3 mg/L total Cr < 1 mg/L total Zn < 1 mg/L total Pb < 1 mg/L total cyanide < 0.4 mg/L O & G < 20 mg/L	Westridge
NEW WESTMINSTER						
C	Canadian Forest Products Ltd.	430 Canfor Ave. V3L 5G2	2512	max. < 5000 m3/d ave. < 4200 m3/d	N/A	STP
D	Domtar Inc.	25 Braid St. V3L 2P2	2591	N/A	N/A	STP

Note:BTEX - Benzene/Toluene/Ethylbenzene/Xylene

HC - hydrocarbon

PAH - Polycyclic Aromatic Hydrocarbons

(should include Anthracene, Pyrene, Naphthalene, Phenanthrene, Benz(a)Anthracene and Benzo(a)Pyrene)

PCB - Polychlorinated Biphenyls

O & G - oil and grease

SS - suspended solids

STP - sewage treatment plant

Table of selected Canadian Standard Industrial Code definitions (1980).

SIC CODE	DEFINITION
24	Clothing Industries
101	Meat and Poultry Products Industries
104	Dairy Products Industries
281	Commercial Printing Industries
296	Aluminum Rolling, Casting and Extruding Industry
521 *	Food, Wholesale (Food Commissary)
1011	Meat and Meat Products Industry, except poultry
1021	Fish Products Industry
1031	Canned and Preserved Fruit and Vegetable Industry
1049	Other Dairy Products Industries
1053	Feed Industry
1072	Bread and Other Bakery Products Industry
1091	Tea and Coffee Industry
1093	Potato Chip, Pretzel and Popcorn Industry
1099	Other Food Products Industries
1131	Brewery Products Industry
1821	Wool Yarn and Woven Cloth Industry
2512	Sawmill and Planing Mill Products Industry
2591	Wood Preservation Industry
2793	Paper Consumer Products Industry
2821	Platemaking, Typesetting and Bindery Industry
3041	Custom Coating of Metal Products Industry
3351	Telecommunication Equipment Industry
3352	Electronic Parts and Components Industry
3611	Refined Petroleum Products Industry
3741	Pharmaceutical and Medicine Industry
3921	Jewellery and Silverware Industry
3931	Sporting Goods Industry
4523	Aircraft Servicing Industry
4791	Refrigerated Warehousing Industry
5216 *	Fresh Fruit/Vegetable, Wholesale (including washing & cutting)
5512	Trucks and Buses, Wholesale, including repair
6352	Paint and Body Repair Shops
6391	Car Washes
9721	Power Laundries and/or Dry Cleaners
ST	Storage Tank Excavation
SR	Soil/Groundwater Remediation

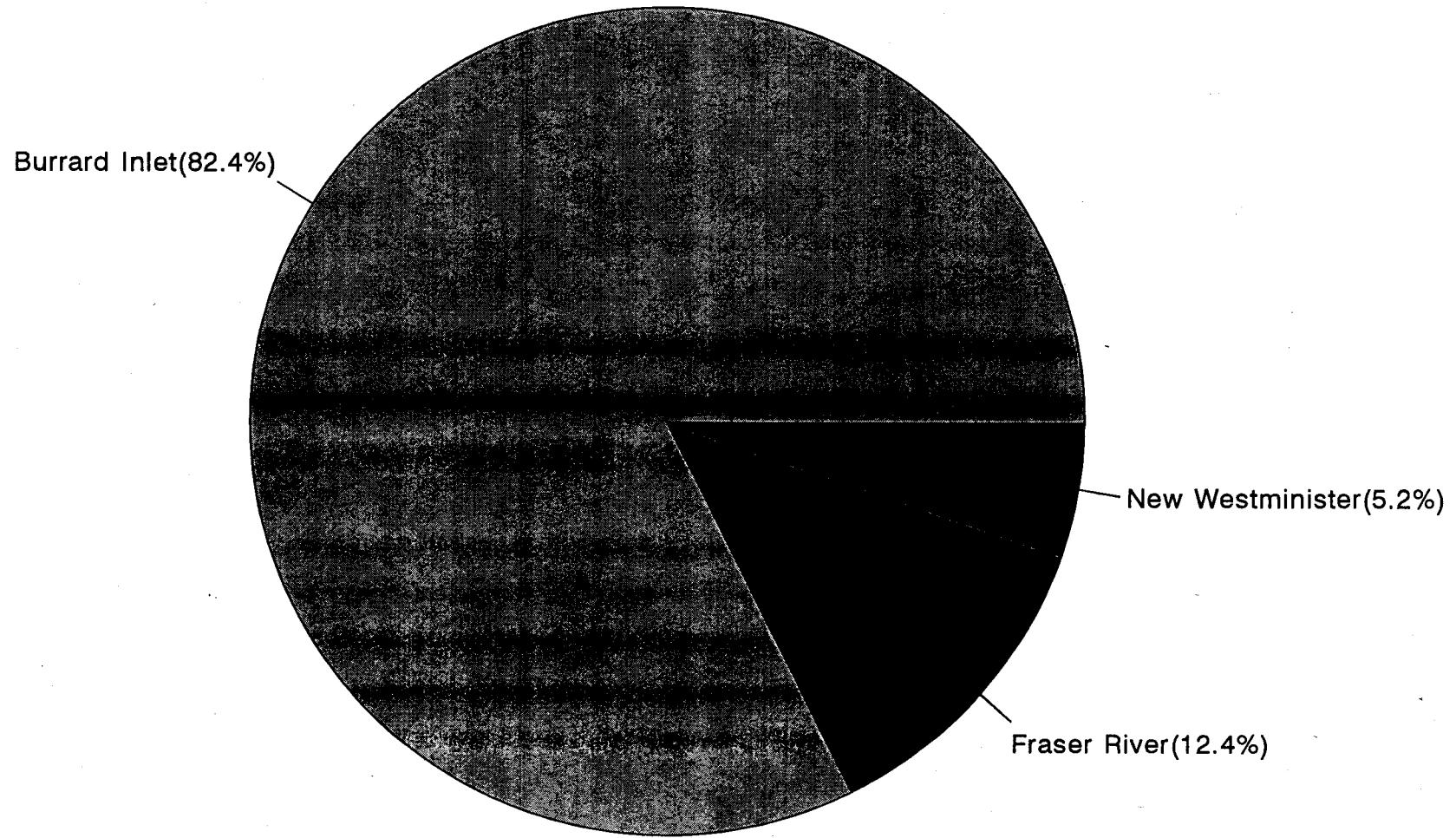
* - SIC code definition has been modified to more accurately represent industry type given by waste discharge permit
 ST/SR - no applicable SIC code available

APPENDIX D

CSO Effluent Volumes

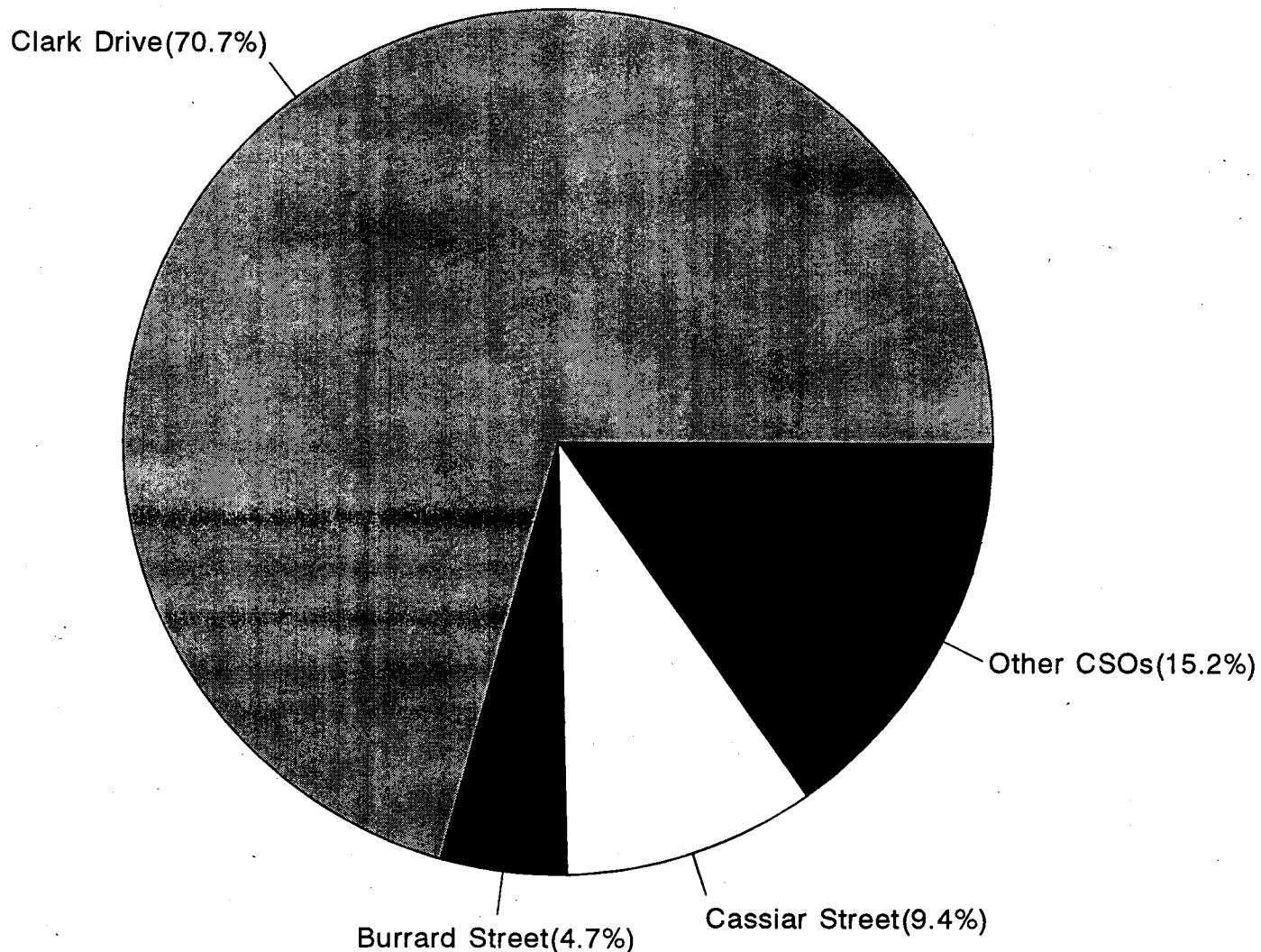
LOWER MAINLAND

Annual CSO Volumes(% by volume)

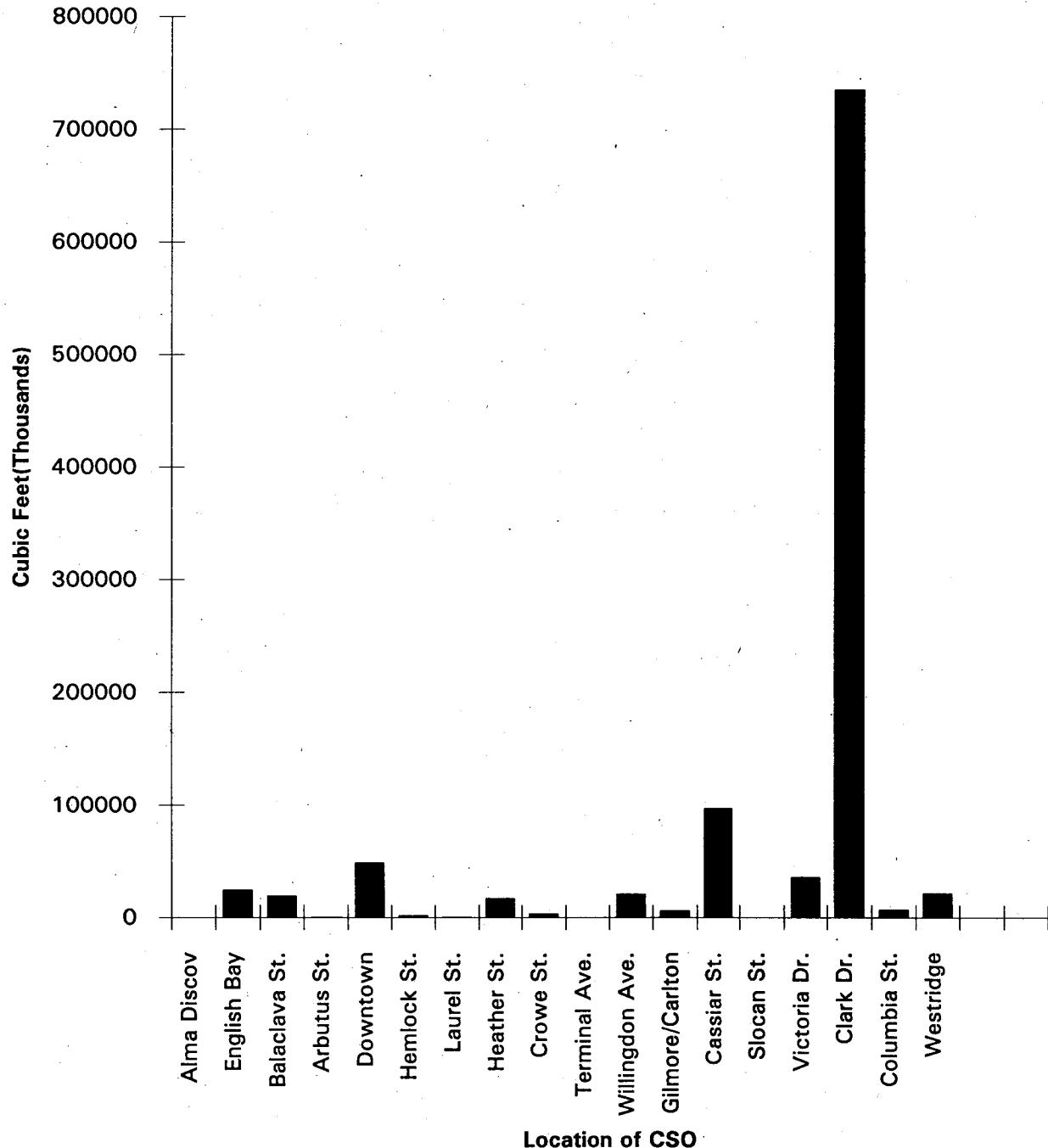


BURRARD INLET

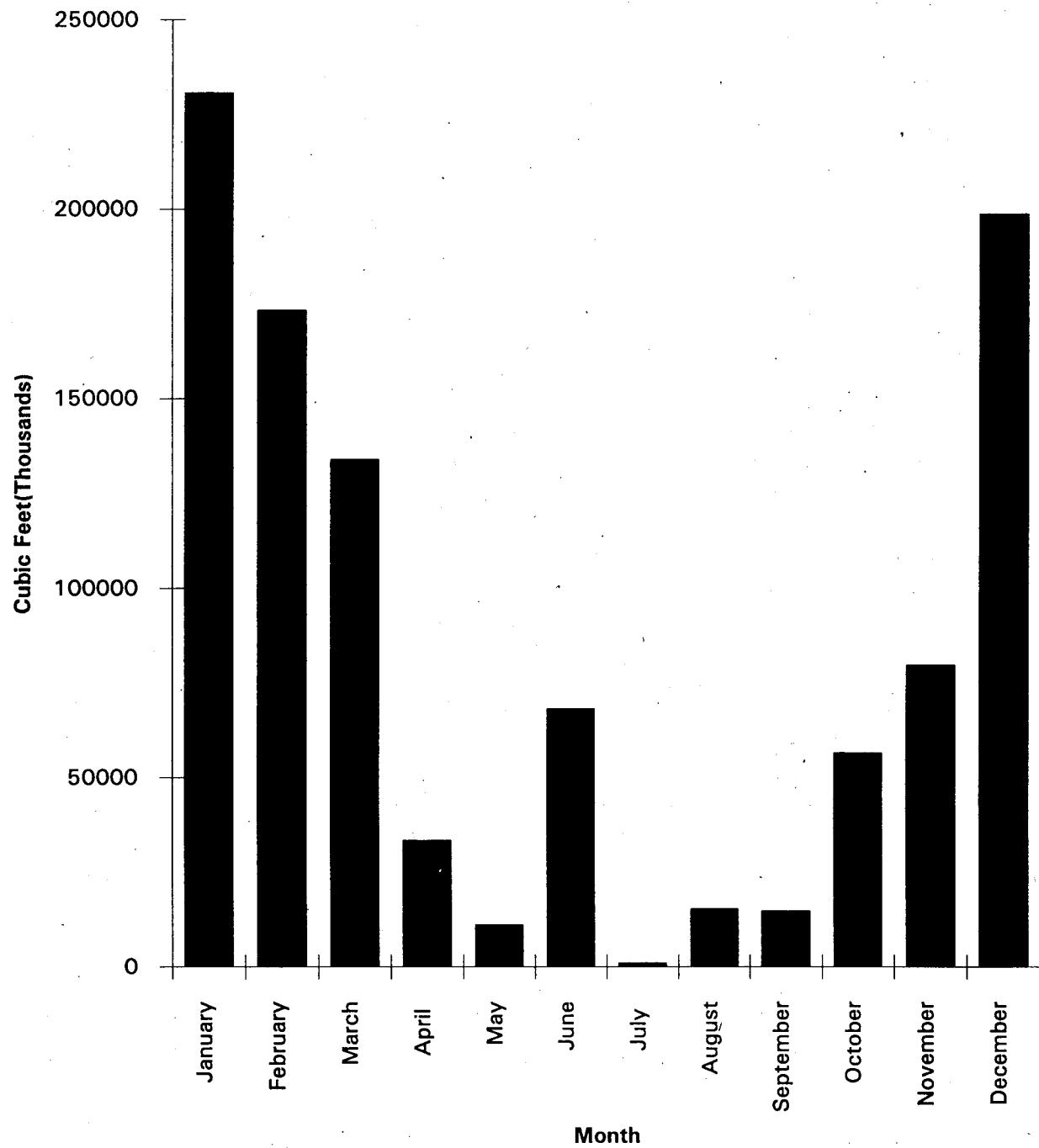
Annual CSO Volumes(% by volume)



CSO Annual Volumes for Burrard Inlet

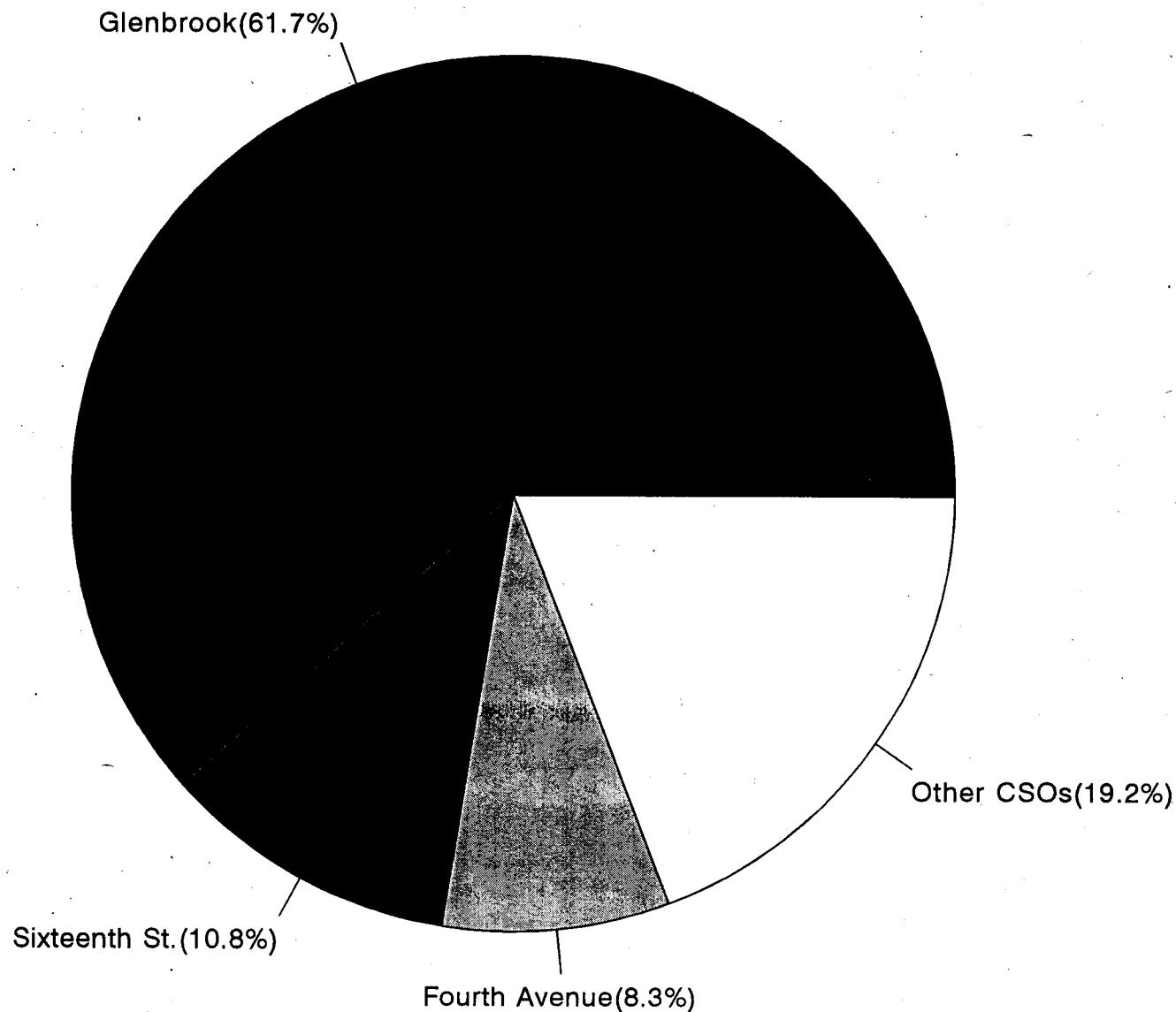


Burrard Inlet Monthly CSO Volumes

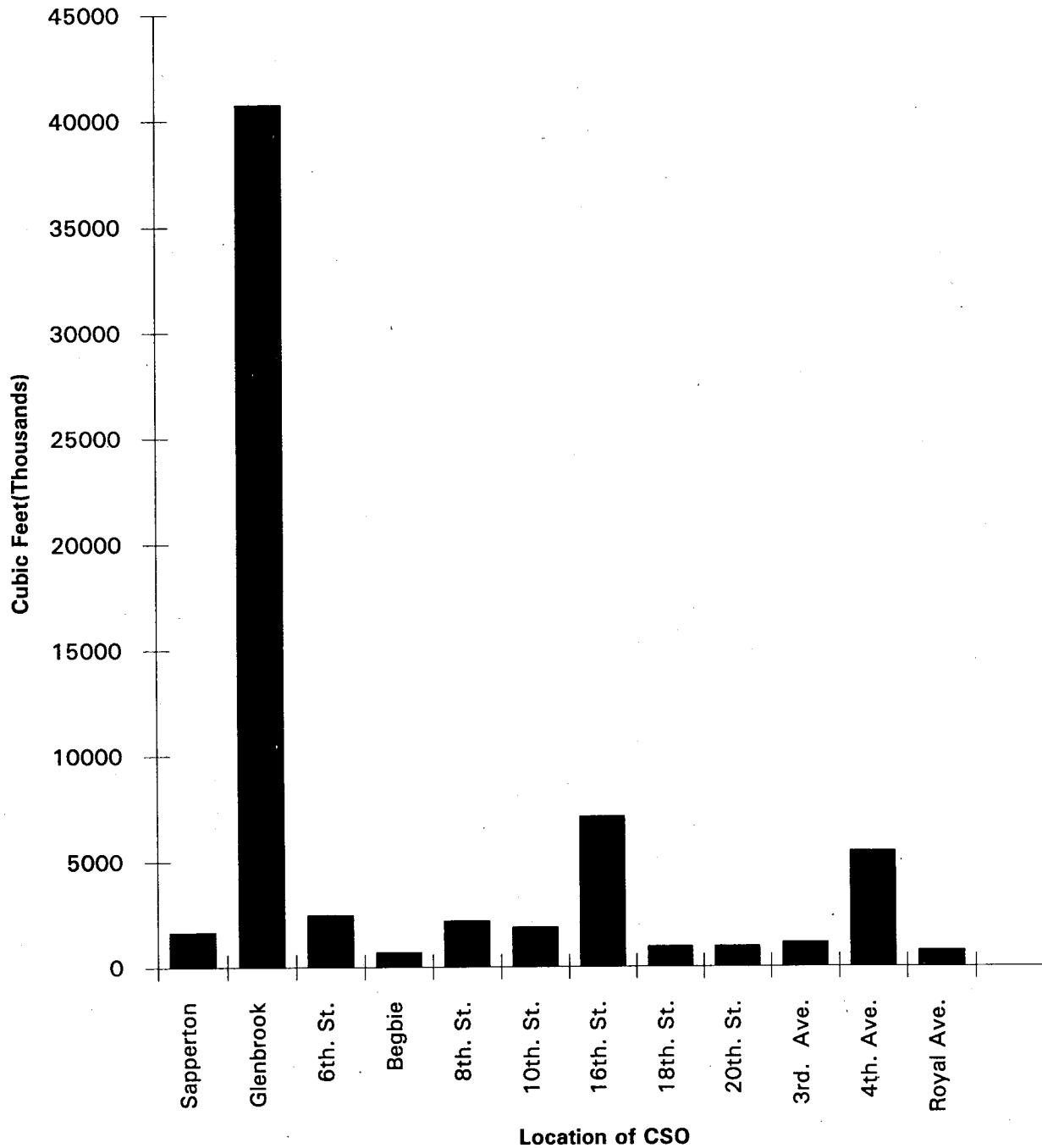


NEW WESTMINISTER WATERFRONT

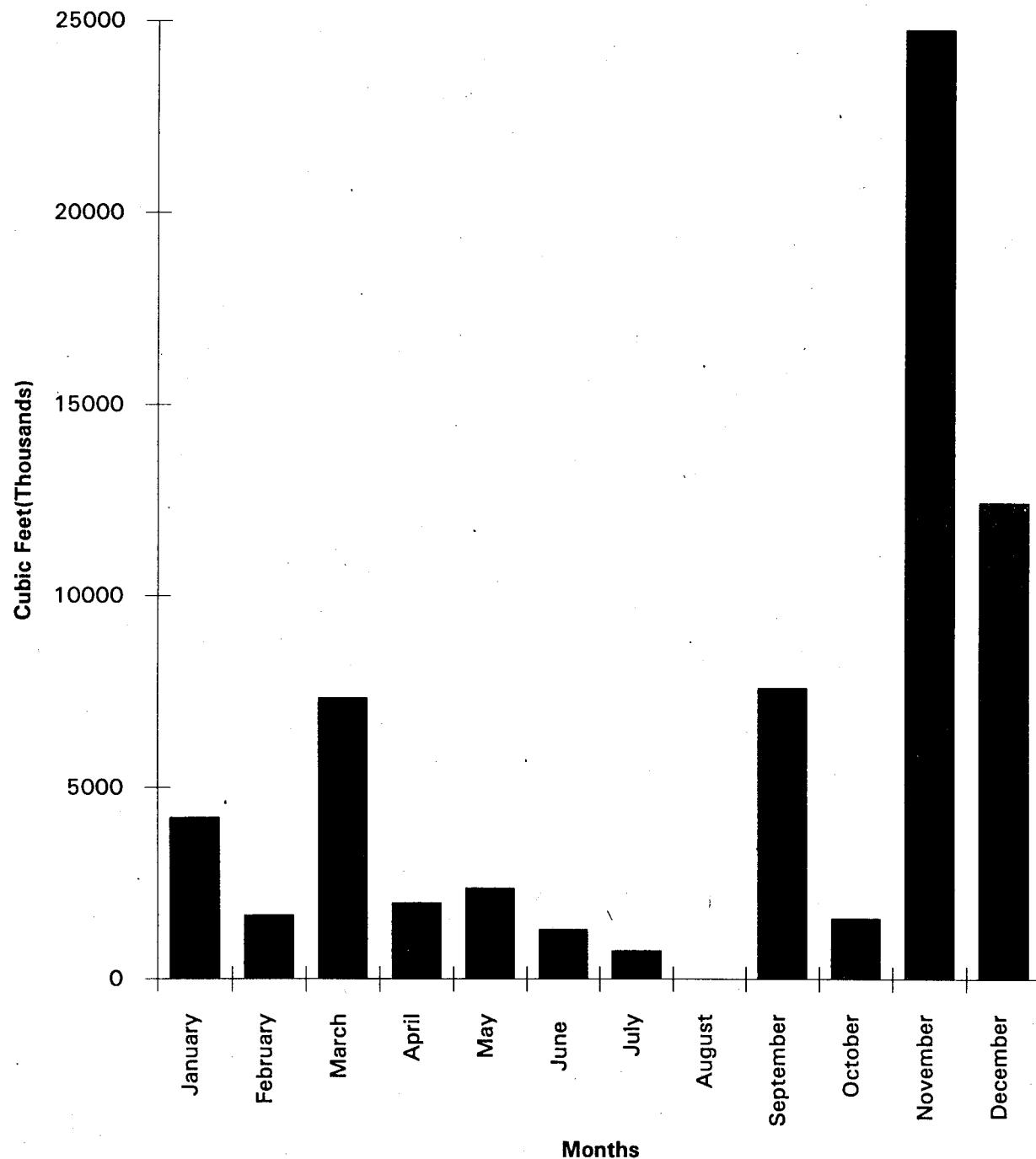
Annual CSO Volumes(% by volume)



CSO Annual Volumes for New Westminster Waterfront

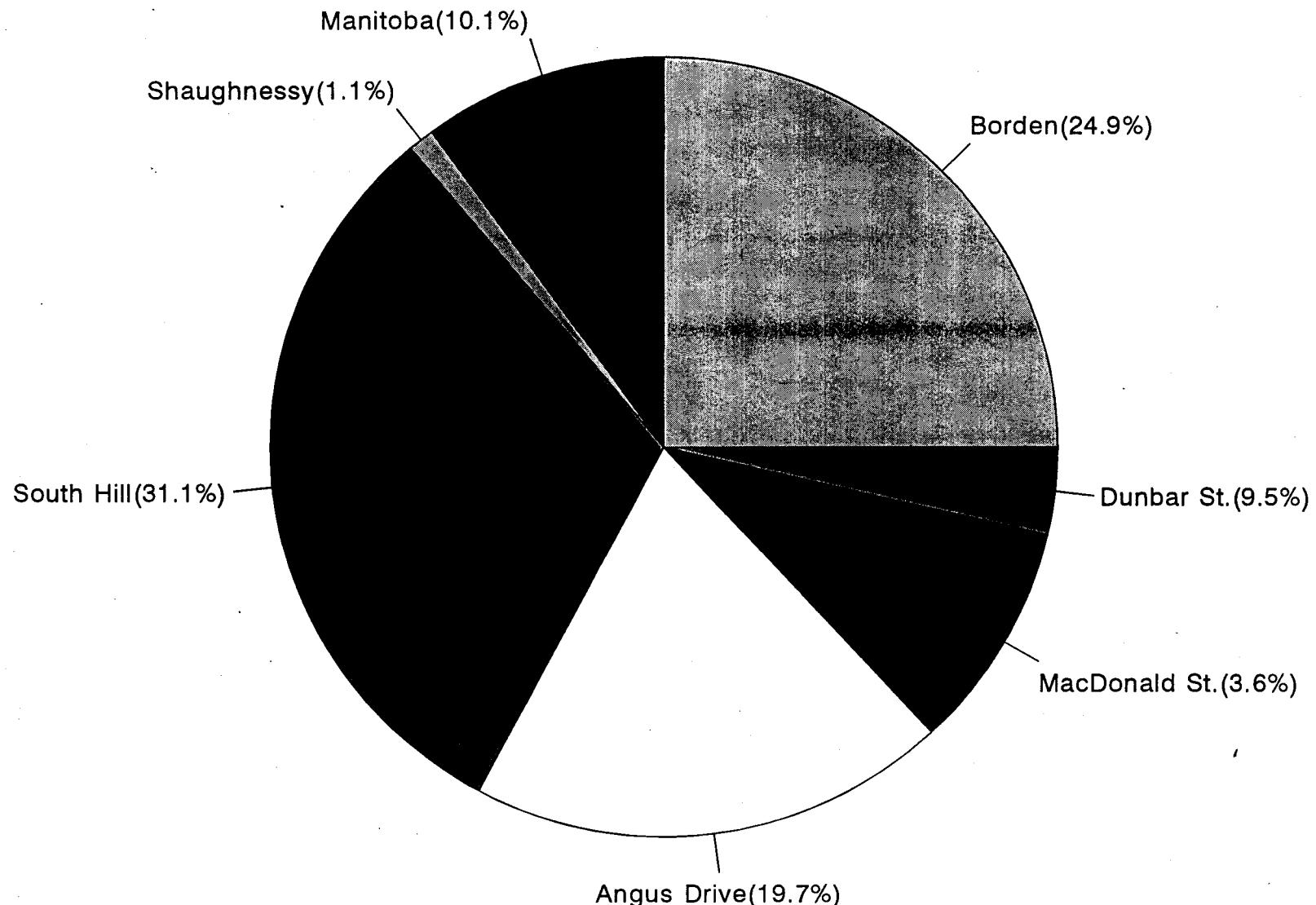


New Westminster Waterfront Monthly CSO Volumes

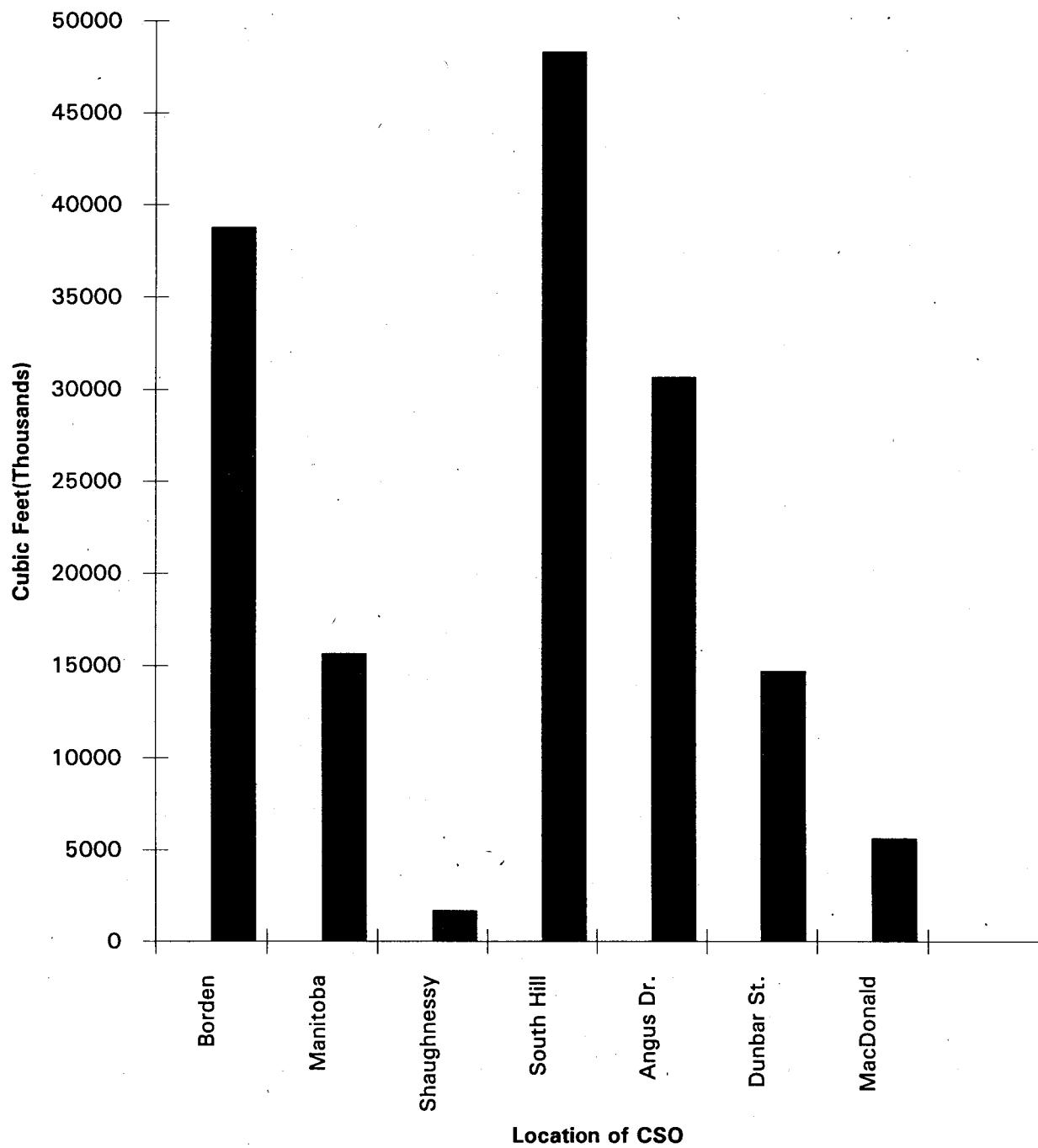


FRASER RIVER NORTH ARM

Annual CSO Volumes(% by volume)



CSO Annual Volumes for Fraser River North Arm



Fraser River North Arm Monthly CSO Volumes

